

On the Poetics of the Science Fiction Genre¹

Science Fiction As Fiction (Estrangement)

THE IMPORTANCE OF science fiction (SF) in our time is on the increase. First, there are strong indications that its popularity in the leading industrial nations (USA, USSR, UK, Japan) has risen sharply over

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¹The first version of this essay crystallized out of a lecture given in the seminar on fantastic literature in the Yale University Slavic Department in Spring 1968. It was presented at Temple University, Philadelphia, at the University of Toronto, and at the 1970 conference of the Science Fiction Research Association at Queensborough Community College, New York. I am grateful for the opportunity of discussing it in these places. In particular I have derived much profit from personal discussion with Professor David Porter at the University of Massachusetts, J. Michael Holquist and Jacques Ehrmann at Yale, with Mr. James Blish and Miss Judy Merrill, and with my colleagues at McGill University, Michael Bristol, Irwin Gopnik, Myrna Gopnik, and Donald F. Theall. This final version owes much to Stanislaw Lem's *Fantastyka i futurologia*, undoubtedly the most significant full-scale morphological, philosophical, and sociological survey of modern SF so far, which has considerably emboldened me in the further pursuit of this elusive field, even where I differed from some of its conclusions. I am also much indebted to the stimulus given by members of my graduate seminar on SF in the Department of English at McGill University. The final responsibility for the structure and conclusions of the essay cannot be shifted onto any other shoulders than mine, however little I may believe in private property over ideas. "Literature" and "literary" are in this essay synonymous with "fiction(al)".

the last 100 years, regardless of local and short-range fluctuations. SF has particularly affected some key strata of modern society such as the college graduates, young writers, and general readers appreciative of new sets of values. This is a significant cultural effect which goes beyond any merely quantitative census. Second, if one takes as differentiae of SF either *radically different figures* (dramatis personae) or a *radically different context* of the story, it will be found to have an interesting and close kinship with other literary sub-genres, which flourished at different times and places of literary history: the Greek and Hellenistic "blessed island" stories, the "fabulous voyage" from Antiquity on, the Renaissance and Baroque "utopia" and "planetary novel," the Enlightenment "state (political) novel," the modern "anticipation," "anti-utopia," etc. Moreover, although SF shares with myth, fantasy, fairy tale and pastoral an opposition to naturalistic or empiricist literary genres, it differs very significantly in approach and social function from such adjoining non-naturalistic or meta-empirical genres. Both of these complementary aspects, the sociological and the methodological, are being vigorously debated among writers and critics in several countries; both testify to the relevance of this genre and the need of scholarly discussion too.

In the following paper I shall argue for a definition of SF as the *literature of cognitive estrangement*. This definition seems

to possess the unique advantage of rendering justice to a literary tradition which is coherent through the ages and within itself, and yet distinct from non-fictional utopianism, from naturalistic literature, and from other non-naturalistic fiction. It thus permits us to lay the basis of a coherent poetics of SF.

I should like to approach such a discussion, and this field of discourse, by postulating a spectrum or spread of literary subject-matter, running from the ideal extreme of exact recreation of the author's empirical environment² to exclusive interest in a strange newness, a *novum*. From the 18th to the 20th century,

the literary mainstream of our civilization has been nearer to the first of the two above-mentioned extremes. However, at the beginnings of a literature, the concern with a domestication of the amazing is very strong. Early tale-tellers tell about amazing voyages into the next valley where they found dog-headed people, also good rock salt which could be stolen or at the worst bartered for. Their stories are a syncretic travelog and *voyage imaginaire*, daydream and intelligence report. This implies a curiosity about the unknown beyond the next mountain range (sea, ocean, solar system . . .), where the thrill of knowledge joined the thrill of adventure.

An island in the far-off ocean is the paradigm of the aesthetically most satisfying goal of the SF voyage, from Iambulus and Euhemerus through the classical utopia to Verne's island of Captain Nemo and Wells' island of Dr. Moreau, especially if we subsume under this the planetary island in the aether ocean—usually the Moon—from Lucian through Cyrano and Swift's mini-Moon of Laputa to the 19th century. Yet the parallel paradigm of the valley, "over the range"³ which shuts it in as a wall, is perhaps as revealing. It recurs almost as frequently, from the earliest folk tales about the sparkling valley of Terrestrial Paradise and the dark valley of the Dead, both already in *Gilgamesh*. Eden is the mythological localization of utopian longing, just as Wells' valley in the *Country of the Blind* is still within the liberating tradition which contends that the world is not necessarily the way our present empirical valley happens to be, and that whoever thinks his valley is the world, is blind. Whether island or valley, whether in space or (from the industrial and bourgeois revolutions on) in

²A virtue of discussing this seemingly peripheral subject of "science fiction" and its "utopian" tradition is that one has to go back to first principles, one cannot really assume them as given—such as in this case what is literature. Usually, when discussing literature one determines what it says (its subject matter) and how it says what it says (the approach to its themes). If we are talking about literature in the sense of significant works possessing certain minimal aesthetic qualities rather than in the sociological sense of everything that gets published at a certain time or the ideological sense of all the writings on certain themes, this principle can more precisely be formulated as a double question. First, epistemologically, what possibility for aesthetic qualities is offered by different thematic fields ("subjects")? The answer of dominant aesthetics at the moment is—an absolutely equal possibility, and with this answer our aesthetics kicks the question out of its field into the lap of ideologists who pick it up by default and proceed to bungle it. Second, historically, how has such a possibility in fact been used? Once you begin with such considerations you come quickly up against the rather unclear concept of *realism* (not the prose literary movement in the 19th century but a meta-historical stylistic principle), since the SF genre is often pigeonholed as non-realistic. I would not object but would heartily welcome such labels if one had first persuasively defined what is "real" and what is "reality". True, this genre raises basic philosophical issues; but is perhaps not necessary to face them in a first approach. Therefore I shall here substitute for "realism" and "reality" the concept of "the author's empirical environment", which seems as immediately clear as any.

³Sub-title of Samuel Butler's SF novel *Erewhon*.

time, the new framework is correlative to the new inhabitants. The aliens—uto-pians, monsters or simply differing strangers—are a mirror to man just as the differing country is a mirror for his world. But the mirror is not only a reflecting one, it is also a transforming one, virgin womb and alchemical dynamo: the mirror is a crucible.

Thus, it is not only the basic human and humanizing curiosity that gives birth to SF. Beside an undirected inquisitiveness, a semantic game without clear referent, this genre has always been wedded to a hope of finding in the unknown the ideal environment, tribe, state, intelligence or other aspect of the Supreme Good (or to a fear of and revulsion from its contrary). At all events, the *possibility* of other strange, co-variant coordinate systems and semantic fields is assumed.

The approach to the imaginary locality, or localized daydream, practiced by the genre of SF is a supposedly factual one. Columbus' (technically or genologically non-fictional) letter on the Eden he glimpsed beyond the Orinoco mouth, and Swift's (technically non-factual) voyage to "Laputa, Balnibarbi, Glubbdubbdrub, Luggnagg and Japan," stand at the opposite ends of a ban between imaginary and factual possibilities. Thus SF takes off from a fictional ("literary") hypothesis and develops it with extrapolating and totalizing ("scientific") rigor—in genre, Columbus and Swift are more alike than different. The effect of such factual reporting of fictions is one of confronting a set normative system—a Ptolemaic-type closed world picture—with a point of view or glance implying a new set of norms; in literary theory, this is known as the attitude of *estrangement*. This concept was first developed on non-natural- (*ostranenie*, Viktor Shklovsky, 1917), and most successfully underpinned by an

anthropological and historical approach in the opus of Bertolt Brecht, who wanted to write "plays for a scientific age." While working on a play about the prototype scientist Galileo, he defined this attitude (*Verfremdungseffekt*) in his *Short Organon for the Theatre* (1948): "A representation which estranges is one which allows us to recognize its subject, but at the same time makes it seem unfamiliar." And further: for somebody to see all normal happenings in a dubious light, "he would need to develop that detached eye with which the great Galileo observed a swinging chandelier. He was amazed by the pendulum motion as if he had not expected it and could not understand its occurring, and this enabled him to come at the rules by which it was governed." Thus, the look of estrangement is both cognitive and creative; and as Brecht goes on to say: "one cannot simply exclaim that such an attitude pertains to science, but not to art. Why should not art, in its own way, try to serve the great social task of mastering Life?"⁴ (Later, Brecht was also to note it might be time to stop speaking in terms of masters and servants altogether.)

⁴Viktor Shklovsky, "Iskusstvo kak priem", in *Poëtika*, Petrograd 1919. In the English translation of this essay "Art as Technique", in Lee T. Lemon and Marion J. Reis eds., *Russian Formalist Criticism: Four Essays*, Lincoln Nebraska 1965, *ostranenie* is rendered somewhat clumsily as "defamiliarization". Cf. also the classical survey of Victor Erlich, *Russian Formalism: History-Doctrine*, The Hague 1955.

Bertolt Brecht, "Kleines Organon für das Theater", in his *Schriften zum Theater* 7, Franfort a.M. 1964, translated in John Willett ed., *Brecht On Theatre*, New York 1964. My quotation is from p. 192 and 96 of this translation, in which I have changed Mr. Willett's translation of *Verfremdung* as "alienation" into my "estrangement", since alienation evokes incorrect, indeed opposite connotations: estrangement was for Brecht an approach militating directly against social and cognitive alienation.

In SF, the attitude of estrangement—used by Brecht in a different way, within a still predominantly “realistic” context—has grown into the *formal framework* of the genre.

Science Fiction As Cognition (Critique and Science)

The use of estrangement both as underlying attitude and dominant formal device is found also in the *myth*, a ritual and religious approach looking in its own way beneath the empiric surface. However, SF sees the norms of any age, including emphatically its own, as unique, changeable, and therefore subject to *cognitive* glance. The myth is diametrically opposed to the cognitive approach since it conceives human relations as fixed, and supernaturally determined, emphatically denying Montaigne's: “*la constance même n'est qu'un branle plus languissant.*” The myth absolutizes and even personifies apparently constant motifs from the sluggish periods with low social dynamics. Conversely, SF, which is organized by extrapolating the variable and future-bearing elements from the empirical environment, clusters in the great whirlpool periods of history, such as the 16-17th and 19-20th centuries. Where the myth claims to explain once and for all the essence of phenomena, SF posits them first as problems and then explores where they lead to; it sees the mythical static identity as an illusion, usually as fraud, in the best case only as a temporary realization of potentially limitless contingencies. It does not ask about The Man or The World, but which man?: in which kind of world?: and why such a man in such a kind of world? As a literary genre, SF is just as opposed to supernatural estrangement as to empiricism (naturalism).

SF is, then a literary genre whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition, and whose main formal device is an imaginative framework alternative to the author's empirical environment.

The estrangement differentiates it from the “realistic” literary mainstream of 18th to 20th century. The cognition differentiates it not only from myth, but also from the fairy tale and the fantasy. The *fairy tale* also doubts the laws of the author's empirical world, but it escapes out of its horizons and into a closed collateral world indifferent toward cognitive possibilities. It does not use imagination as a means to understand the tendencies in reality, but as an end sufficient unto itself and cut off from the real contingencies. The stock fairy-tale accessory, such as the flying carpet, evades the empirical law of physical gravity—as the hero evades social gravity—by imagining its opposite. The wishfulfilling element is its strength and weakness, for it never pretends that a carpet could be expected to fly—that a humble third son could be expected to become a king—while there is gravity. It just posits another world beside yours where some carpets do, magically, fly, and some paupers do, magically, become princes, and into which you cross purely by an act of faith and fancy. Anything is possible in a fairy tale, because a fairy tale is manifestly impossible. Therefore, SF retrogressing into fairy-tale (e.g. “space opera” with a hero-princess-monster triangle in astronautic costume) is committing creative suicide.

Even less congenial to SF is the *fantasy* (ghost, horror, Gothic, weird) tale, a genre committed to the interposition of anti-cognitive laws into the empirical environment. Where the fairy tale was indifferent, the fantasy is inimical to the

empirical world and its laws. The thesis could be defended that the fantasy is significant insofar as it is impure and fails to establish a super-ordinated maleficent world of its own, causing a grotesque tension between arbitrary supernatural phenomena and the empirical norms they infiltrate.⁵ Gogol's *Nose* is so interesting because it is walking down the Nevski Prospect, with a certain rank in the civil service, etc.; if the *Nose* were in a completely fantastic world—say H.P. Lovecraft's—it would be just another ghoulish thrill. When fantasy does not make for such a tension between its norms and the author's empirical environment, its reduction of all possible horizons to Death makes of it just a sub-literature of mystification. Commercial lumping of it into the same category as SF is thus a grave disservice.

The *pastoral* is essentially closer to SF. Its imaginary framework of a world without money economy, state apparatus, and depersonalizing urbanization allows it to isolate, as in the laboratory, two human motivations—erotics and power-hunger. This approach relates to SF as alchemy does to chemistry and nuclear physics: an early try in the right direction with insufficient sophistication. SF has thus much to learn from the pastoral tradition, primarily from its directly sensual relationships without class alienation. It has in fact often done so, whenever it has sounded the theme of the triumph of the humble (Restif, Morris, etc. up to Simak, Christopher, Yefremov . . .). Unfortunately, the baroque pastoral abandoned this theme and jelled into a sentimental convention, discrediting the genre; but when the pastoral escapes preciousness, its

hope can fertilize the SF field as an antidote to pragmatism, commercialism, other-directedness and technocracy.

Claiming a Galilean or Brunoan estrangement for SF does not at all mean committing it to scientific vulgarization or even technological prognostication, which it was engaged in at various times (Verne, U.S. in the 1920's-1930's, U.S. S.R. under Stalinism). The needful and meritorious task of popularization can be a useful element of the SF works at a juvenile level. But even the *roman scientifique* such as Verne's *From the Earth to the Moon*—or the surface level of Wells' *Invisible Man*—though a legitimate SF form, is a lower stage in its development. It is very popular with audiences just approaching SF, such as the juvenile, because it introduces into the old empirical context only *one* easily digestible new technological variable (Moon missile, or rays which lower the refractive index of organic matter).⁶ The euphoria provoked by this approach is real but limited, better suited to the short story and a new audience. It evaporates much quicker as the positivistic natural science loses prestige in the humanistic sphere after the World Wars (cf. Nemo's as against the U.S. Navy's atomic "Nautilus"), and surges back with prestigious peace-time applications in new methodologies (astronautics, cybernetics). Even in Verne, the structure of the "science novel" is that of a pond after a stone has been thrown into it: there is a momentary commotion, the waves go from impact point to periphery and back, then the system settles down as before. The only difference is that one positivistic fact—usually an item of hardware—has been added, like the

⁵Since my first penning these lines, such a thesis has been ably developed in Tzvetan Todorov, *Introduction à la littérature fantastique*, Paris 1970.

⁶Note the functional difference to the anti-gravity metal in Wells' *First Man on the Moon* which is an introductory gadget and not the be-all of a much richer novel.

stone to the pond bottom. This structure of transient estrangement is specific to murder mysteries, not to a mature SF.

After such delimitations, it is perhaps possible at least to indicate some differentiations within the concept of "cognitiveness" or "cognition". As used here, this term does not imply only a reflecting of but also *on* reality. It implies a creative approach tending toward a dynamic transformation rather than toward a static mirroring of the author's environment. Such typical methodology of SF—from Lucian, More, Rabelais, Cyrano, and Swift to Wells, London, Zamiatin, and the last decades—is a *critical* one, often satirical, combining a belief in the potentialities of reason with methodical doubt in the most significant cases. The kinship of this cognitive critique with the philosophical basis of modern science is evident.

Science Fiction as a Literary Genre (Functions and Models)

As a full-fledged literary genre, SF has its own repertory of functions, conventions and devices. Many of them are highly interesting and significant for literary theory and history, but their range can scarcely be discussed in a brief approach as it is properly the subject for a book-length work. However, it might be possible to sketch some determining parameters of the genre

In a typology of literary genres for our cognitive age, one basic parameter would take into account the relationship of the world(s) each genre presents and the "zero world" of empirically verifiable properties around the author (this being "zero" in the sense of a central reference point in a coordinate system, or of the control group in an experiment). Let us call this empirical world *naturalistic*. In

it, and in the corresponding naturalistic or "realistic" literature, ethics are in no significant relation to physics. Modern mainstream literature is forbidden the pathetic fallacy of earthquakes announcing the assassination of rulers or drizzles accompanying the sadness of the heroine. It is the activity of the protagonists, interacting with other, physically equally unprivileged figures, that determines the outcome. However superior technologically or sociologically one side in the conflict may be, any predetermination as to its outcome is felt as an ideological imposition and genological impurity: the basic rule of naturalistic literature is that man's destiny is man, i.e. other humans.⁷ On the contrary, in non-naturalistic, *metaphysical* literary genres discussed above, circumstances around the hero are neither passive nor neutral. The fairy-tale world is oriented positively toward its protagonist. A fairy-tale is defined by the hero's triumph: magic weapons and helpers are, with necessary narrative retardations, at his beck and call. Inversely, the world of the tragic myth is oriented negatively toward its protagonist. Oedipus, Attis or Christ are predestined to empirical failure by the nature of their world—but the failure is then ethically exalted and put to religious use. The fantasy—a derivation of the tragic myth just as the fairy-tale derives

⁷In cases such as some novels of Hardy and plays by Ibsen, or some of the more doctrinaire works of the historical school of Naturalism, where determinism strongly stresses circumstances at the expense of the main figures' activity, we have underneath a surface appearance of "realism" obviously to do with an approach to tragic myth using a shamefaced motivation in an unbelieving age. As contrary to Shakespeare and the Romantics, in this case ethics follow physics in a supposedly causal chain (most often through biology). An analogous approach to fairy-tale is to be found in, say, the mimicry of "realism" found in the Hollywood happy-end movies.

from the victorious hero myth—is defined by the hero's horrible helplessness: it can be thought of as tragic mythemes without metaphysical compensations. Thus, in the fairy-tale and the fantasy ethics coincide with (positive or negative) physics, in the tragic myth they compensate the physics, in the “optimistic” myth they supply the coincidence with a systematic framework.

The world of a work of SF is not *a priori* intentionally oriented toward its protagonists, either positively or negatively; the protagonists may succeed or fail in their objectives, but nothing in the basic contract with the reader, in the physical laws of their worlds, guarantees either. SF is thus (possibly with the exception of some prefigurations in the pastoral) the only meta-empirical genre which is not at the same time metaphysical; it shares with the dominant literature of our civilization a mature approach analogous to that of modern science and philosophy. Furthermore, it shares the omnitemporal horizons of such an approach. The myth is located above time, the fairy-tale in a conventional grammatical past which is really outside time, and the fantasy in the hero's abnormally disturbed present. The naturalistic literary mainstream and SF can range through all times: empirical ones in the first, non-empirical ones in the latter case. The naturalistic mainstream concentrates on the present, but it can deal with the historical past, and even to some degree with the future in the form of hopes, fears, premonitions, dreams, *et sim.* SF concentrates on possible futures and their spatial equivalents, but it can deal with the present and the past as special cases of a possible historical sequence seen from an estranged point of view (by a figure from another time and/or space). SF can thus use the cre-

ative potentialities of an approach not limited by a consuming concern with empirical surfaces and relationships.

As a matter of historical record, SF has started from a pre-scientific or proto-scientific approach of debunking satire and naive social critique, and moved closer to the increasingly sophisticated natural and human sciences. The natural sciences caught up and surpassed the literary imagination in the 19th century, the sciences dealing with human relationships might be argued to have caught up with it in their highest theoretical achievements but have certainly not done so in their alienated social practice. In the 20th century, SF has moved into the sphere of anthropological and cosmological thought, becoming a diagnosis, a warning, a call to understanding and action, and—most important—a mapping of possible alternatives. This historical movement of SF can be envisaged as an enrichment of and shift from a basic direct or extrapolative model to an indirect or analogic model.

The earlier dominant model of SF from the 19th century on (though not necessarily in preceding epochs) was one which started from certain cognitive hypotheses and ideas incarnated in the fictional framework and nucleus of the fable. This *extrapolative* model—e.g., of London's *Iron Heel*, Wells' *The Sleeper Wakes* and *Men Like Gods*, Zamiatin's *We*, Stapledon's *Last and First Men*, Pohl and Kornbluth's *Space Merchants*, or Yefremov's *Andromeda*—is based on direct, temporal extrapolation and centered on sociological (i.e., utopian and anti-utopian) modelling. This is where the great majority of the “new maps of hell” belongs for which postwar SF is justly famous, in all its manifold combinations of socio-technological scientific cognition and social oppression (global

catastrophes, cybernetics, dictatorships). Yet already in Wells' *Time Machine* and in Stapledon, this extrapolation transcended the sociological spectrum (from everyday practice through economics to erotics) and spilled into biology and cosmology. Nonetheless, whatever its ostensible location (future, "fourth dimension", other planets, alternate universes), "extrapolative modelling" is oriented futurologically. Its values and standards are to be found in the cognitive import of the fable's premises and the consistency with which such premises (usually one or very few in number) are narratively developed to its logical end, to a cognitively significant conclusion.

SF can thus be used as a hand-maiden of futurological foresight in technology, ecology, sociology, etc. Whereas this may be a legitimate secondary function the genre can be made to bear, any oblivion of its strict secondariness may lead to confusion and indeed danger. Ontologically, art is not pragmatic truth nor fiction fact. To expect from SF more than a stimulus for independent thinking, more than a system of stylized narrative devices understandable only in their mutual relationships within a fictional whole and not as isolated realities, leads insensibly to critical demand for and of scientific accuracy in the extrapolated *realia*. Editors and publishers of such "hard" persuasion have, from the U.S. pulp magazines to the Soviet agitprop, been inclined to turn the handmaiden of SF into the slavey of the reigning theology of the day (technocratic, psionic, utopian, catastrophic, or whatever). Yet this fundamentally subversive genre languishes in strait-jackets more quickly than most other ones, responding with atrophy, escapism, or both. Laying no claim to prophecies except for its statistically to be expected share, SF should not be

treated as a prophet: neither enthroned when apparently successful, nor beheaded when apparently unsuccessful. As Plato found out in the court of Dionysus and Hythlodai at cardinal Morton's, SF figures better devote themselves to their own literary republics, which, to be sure, lead back—but in their own way—to the Republic of Man. SF is finally concerned with the tensions between *Civitas Dei* and *Civitas Terrena*, and it cannot be uncritically committed to any mundane City.

The *analogic model* in SF is based on analogy rather than extrapolation. Its figures may but do not have to be anthropomorphic or its localities geomorphic. The objects, figures, and up to a point the relationships from which this indirectly modelled world starts can be quite fantastic (in the sense of empirically unverifiable) as long as they are logically, philosophically and mutually consistent. Again, as in all distinctions of this essay, one should think of a continuum at whose extremes there is pure extrapolation and analogy, and of two fields grouped around the poles and shading into each other on a wide front in the middle.

The lowest form of analogic modelling goes back to a region where distinction between a crude analogy and an extrapolation backwards are not yet distinguishable: it is the analogy to Earth past, from geological through biological to ethnological and historical. The worlds more or less openly modelled on the Carboniferous Age, on tribal prehistory, on barbaric and feudal empires—in fact modelled on handbooks of geology and anthropology, on Spengler and *The Three Musketeers*—are unfortunately abundant in the foothills of SF. Some of them may be useful adolescent leisure reading, which one should not begrudge; however, their uneasy coexistence with a superscience in

the story framework or around the protagonist, which is supposed to provide an SF alibi, brings them close to or over the brink of minimum cognitive standards required. The Burroughs-to-Asimov space-opera, cropping up in almost all U.S. writers right down to Samuel Delany belongs here, i.e., into the uneasy borderline between inferior SF and non-SF (forms mimicking SF scenery but modeled on the structures of the Western and other avatars of fairy-tale and fantasy).

The highest form of analogic modelling would be the analogy to a mathematical model, such as the fairly primary one explicated in Abbott's *Flatland*, as well as the ontological analogies found in a compressed overview form in some stories by Borges and the Polish writer Lem, and in a somewhat more humane narration with a suffering protagonist in some stories by Kafka (*The Metamorphosis* or *In the Penal Colony*) and novels by Lem (*Solaris*). Such highly sophisticated philosophico-anthropological analogies are today perhaps the most significant region of SF, indistinguishable in quality from best mainstream writing. Situated between Borges and the upper reaches into which shade the best utopias, anti-satires and satires, this semantic field is a modern variant of the *conte philosophique* of the 18th century. Similar to Swift, Voltaire, or Diderot, these *modern parables* fuse new visions of the world with an applicability—usually satirical and grotesque—to the shortcomings of our workaday world. As different from the older Rationalism, a modern parable must be open-ended by analogy to modern cosmology, epistemology, and philosophy of science.⁸

⁸I have tried to analyze one such representative work in my afterword to Lem's *Solaris*, New York 1970, entitled "The Open-Ended Parables of Stanislaw Lem and *Solaris*".

The indirect models of SF fall, however, still clearly within its cognitive horizons insofar as their conclusions or import is concerned. The cognition gained may not be immediately applicable, it may be simply the enabling of the mind to receive new wavelengths, but it eventually contributes to the understanding of the most mundane matters. This is testified by the works of Kafka and Lem, of Karel Čapek and Anatole France, as well as of the best of Wells and the "SF reservation" writers.

For a Poetics of Science Fiction (Summation and Anticipation)

The above sketch should, no doubt, be supplemented by a sociological analysis of the "inner environment" of SF, exiled since the beginning of 20th century into a reservation or ghetto which was protective and is now constrictive, cutting off new developments from healthy competition and the highest critical standards. Such a sociological discussion would enable us to point out the important differences between the highest reaches of the genre, glanced at in this essay in order to define functions and standards of SF, and the 80% or more of debilitating confectionery. Yet it should be stressed that, as different from many other para-literary genres, the criteria for the insufficiency of most SF is to be found in the genre itself. This makes SF in principle, if not yet in practice, equivalent to any other "major" literary genre.

If the whole above argumentation is found acceptable, it will be possible to supplement it also by a survey of forms and sub-genres. Beside some which recur in an updated form—such as the utopia and fabulous voyage—the anticipation, the superman story, the artificial intelligence story (robots, androids, etc.), time-travel,

catastrophe, the meeting with aliens, etc., would have to be analyzed. The various forms and sub-genres of SF could then be checked for their relationships to other literary genres, to each other, and to various sciences. For example, the utopias are—whatever else they may be—clearly sociological fictions or social-science-fiction, whereas modern SF is analogous to modern polycentric cosmology, uniting time and space in Einsteinian worlds with different but co-variant dimensions and time scales. Significant modern SF, with deeper and more lasting sources of enjoyment, also presupposes more complex and wider cognitions: it discusses primarily the political, psychological, anthropological *use and effect of sciences, and philosophy of science*, and the becoming or failure of new realities as a result of it. The consistency of extrapolation, precision of analogy and width of reference in such a cognitive discussion turn into aesthetic factors. (That is why the “scientific novel” discussed above is not felt as completely satisfactory—it is aesthetically poor because it is scientifically meager.) Once the elastic criteria of literary structuring have been met, *a cognitive—in most cases strictly scientific—element becomes a measure of aesthetic quality, of the specific pleasure to be sought in SF*. In other words, the cognitive nucleus of the plot co-determines the fictional estrangement in SF. This works on all literary levels: e.g., purely aesthetic, story-telling reasons led modern SF to the cognitive assumption of a hyperspace where flight speed is not limited by the speed of light.

Finally, it might be possible to sketch the basic premises of a significant criticism, history and theory of this literary genre. From Edgar Allan Poe to Damon Knight, including some notable work on the older sub-genres from the utopia to

Wells, and some general approaches to literature by people awake to methodological interest, much spadework has been done.⁹ In the work of Lem (see note 1) we may even possess some cornerstones for a needed critical home. If one may speculate on some fundamental features or indeed axioms of such criticism, the first might be the already mentioned one that the genre has to be evaluated proceeding from its heights down, applying the standards gained by the analysis of its masterpieces. The second axiom might be to demand of SF a level of cognition higher than that of its average reader: the strange novelty is its *raison d'être*. As a minimum, we must demand from SF that it be wiser from the world it speaks to.

In other words, this is an educational literature, hopefully less deadening than most compulsory education in our split national and class societies, but irreversibly shaped by the pathos of preaching the good word of human curiosity, fear, and hope. Significant SF (to which, as in all genres—but somewhat disappointingly so—at least 95% of printed matter claiming the name does not belong) denies thus the “two-cultures gap” more efficiently than any other literary genre I know of. Even more importantly, it demands from the author and reader, teacher and critic, not merely specialized, quantified positivistic knowledge (*scientia*) but a social imagination whose quality, whose wisdom (*sapientia*), testifies to the maturity of his critical and creative thought.

Selected Bibliography: Theory and General Surveys of SF After Wells

Kingsley Amis, *New Maps of Hell*, New York 1960.

⁹On this continent, one ought to mention in the first place Northrop Frye's *Anatomy of Criticism*, New York 1966, and Angus Fletcher's *Allegory*, Ithaca, 1964.