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Science Fiction as Futurist Prediction: Alternative Visions of Heinlein and Clarke

AS THE NOTED sociologist Prof. Daniel Bell once remarked, "the function of prediction is not to aid social control, but to widen the spheres of moral choice."[1] Unfortunately, those involved in the fledgling "scientific" discipline of futurism seem oblivious of this maxim in their quest for statistical exactitude and methodological rigorousness. The effort of delineating these choices is consequently left to the philosopher. Yet, while a Rawls or Nozick may indeed have something important to say, their problem lies in the fact that they approach the matter in terms too abstruse for the general reader to fully comprehend their message. It is precisely here that the oft-maligned literature of science fiction can be of great utility, for while admittedly lacking in any kind of futuristic methodological rigor, it compensates for this deficiency through its vision of feasible, possible, conceivable, or even improbable futuristic social forms, political institutions, and general *Weltanschauung*. Kahn and Wiener, perhaps the most widely read futurists, concede the need for this approach:

> "Clearly it is desirable to have some concept of the alternative futures toward which policies may tend before the policies are formulated. Otherwise, points of no return may be passed without any conscious awareness that the panoply of choices is so great and the future so uncertain. If these be speculations or nightmares then—as they are—rather than science, prognostication or, except with respect to limited aspects of the problem, technological extrapolations, they . . . ought nonetheless to be part of the intellectual equipment of modern

> man. 'Wild' speculation is needed to provide an imaginative perspective within which alternative choices can acquire a deeper, if not necessarily more exact meaning."[2]

Science fiction, of course, does deal in "wild speculation," offering it, however, in a more structured context than would mere imaginative ruminations. Good science fiction does this by adhering to the intrinsically logical as well as the psychologically believable given the initial "wild" assumptions of its futuristic environment. In this respect science fiction can be held no less accountable than "mainstream" fiction. Admittedly, science fiction is written to entertain, but that hardly precludes it from the possibility of having something valuable to contribute. Especially when dealing with the giants of the field one is aware that they have something of great substance to offer, as do all top professionals of any literary genre. Unfortunately, the battle for recognition as a serious medium has been especially difficult due to its early association with monster subject matter and a juvenile audience. Nevertheless, sci-fi (as it is generally called by its aficionados) has come of age, and its subject matter should be treated in much the same manner as that of mainstream literature.

There are a number of serious science fiction practitioners. We will limit our critique here to Robert Heinlein and Arthur C. Clarke who offer rather contrasting outlooks of the future both with regard to its reality and its philosophical underpinnings. Heinlein is by far the superior stylist. On the other hand, in the realm of ideas—both of the technological and philosophical sort—Clarke has the edge in sophistication and macrohistorical vision. Yet both offer philosophical viewpoints which not only are somewhat antithetical but which in some ways reflect the great issues of modern times. We would do well to heed the suggestions of the critic Robert Bloch who argues that science fiction "provides a very accurate mirror of our own problems, and our own beliefs which fail to solve these problems. Gazing into that mirror, we all might find it profitable to indulge in a bit of reflection."[3] Heinlein himself recognizes as much, believing science fiction to be "the only form of fiction which stands even a chance of interpreting the spirit of our times."[4]

To be sure, there is an analytical difficulty in extracting these "interpretations." Obviously they are usually not explicitly stated in the body of the works. (When Heinlein does so on occasion, it is to the detriment of his fiction.) However, this is no more of a handicap than that with which any critic of fiction must deal. The major problem here is that we are about to analyze a body of literature whose range of subject matter is almost superseded by the sundry ways in which the authors approach it. Topics as varied as sex, religion, gastronomy, and murder are dealt with; the fields of politics, sociology, and economics among others are covered in depth. Nevertheless, there is a unifying principle in their works around which various aspects of the alternative futures are woven—the role of the individual versus the group in dealing with the new and complex problems that the future offers. But before we tackle the comparison-contrast between the two authors it would be advisable to first consider the theoretical problem of science fiction and futuristic prediction, since the nexus is not readily accepted by all.

> "What is conceivable, will be."
> Parmenides

The crucial question which faces us is the efficacy of science fiction as a medium for futurist prediction. Very few would argue that science fiction's major role (aside from entertainment) is prophesying the future, yet in presenting different futures it is not dealing in probabilities but at the most possibilities. This turns out to be not much of a drawback, though, as the father figure of science fiction—Jules Verne—once noted: "tout ce qu'un homme est capable d'imaginer, d'autres hommes serent capable de la réaliser."[5] Yesterday's hypotheses are today's possibilities and tomorrow's realities. Isaac Asimov (perhaps *the* most prolific science fiction writer) echoes this thought today, arguing that

any change, and hold savagely to the status quo, or to advocate change, a certain change, and no other change."[14] Rather, science fiction recognizes that "there must be a third group, one which realizes that the status is not and cannot be quo forever."

In sum, science fiction's role is twofold. Not only does it function as a camera obscura with which to view both present day and future societies, it also acts as an educational bridge between the two, by "accustoming its readers to the thought of the inevitability of continuing change and the necessity of directing and shaping that change rather than opposing it blindly or blindly permitting it to overwhelm us."[15] Science fiction is better equipped to do this than any other genre for it has the habit of mind which looks beyond the solution of problems already evident to the formulation of problems not yet distinguishable. By presenting these problems before they occur, science fiction indeed "widens the spheres of moral choice."

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"Vanity, vanity, all is vanity."
Ecclesiastes

It is generally conceded that the two creators of modern science fiction are Jules Verne and H. G. Wells whose preoccupations, though quite different, were necessarily complementary for the future development of science fiction. Verne's main concern was technology itself, or as Wells put it, "actual possibilities of invention and discovery."[16] Wells' main interest on the other hand "was not in scientific advance as such but in its effect on human life."[17] To a great extent, these two pioneers have their intellectual descendants in Clarke and Heinlein, respectively.

Both could have written a book entitled *Profiles of the Future* but only Clarke would limit it "with few exceptions . . . to a single aspect of the future—its technology, not the society that will be based upon it." Nor does he do this because technology is what he knows best. Rather, it is because "science will dominate the future even more than it dominates the present . . . [as] politics and economics will cease to be as important in the future as they have been in the past."[18] Heinlein on the other hand, while usually not dealing with ludicrous "space warps" and the like, more closely

follows the Wellesian approach of firing "off a few phrases of pseudo-scientific patter and bundling his characters away to the moon or the 803d century with despatch,"[19] as Amis puts it. For Heinlein the scientific environment is incidental, providing the backdrop into which the interpersonal and intersocietal meetings and conflicts can be examined and resolved. Of course both offer a literary exception or two. Clarke's *The Deep Range* is thematically involved with the philosophically weighty questions of world ecology and vegetarianism; Heinlein offers his novella *Waldo* which deals mainly with esoteric technological inventions. Yet by and large the generalization holds true.

This presents certain problems when attempting to compare and contrast their thematic material with regard to the future. If as Knight points out, "Clarke's focus is almost always on the gadget rather than on the people,"[20] and Heinlein's priorities are reversed, how does one create a meeting of the minds or at least a confrontation? On the micro-level of technology it is impossible and pointless. On the intermediate level of personal interaction and societal conflict it is possible but there are difficulties. Perhaps the most interesting level, though, occurs when they both occasionally transcend man's parochial perspective and delve into macro-historical and racial questions of monumentally philosophical import. As Knight puts it, "Clarke's abiding sense of the grandeur of creation may perhaps make him a poor recorder of merely human character and emotion; but we need that wide view—that breath from the microcosm, cutting through the reeks of our little sty."[21] To point out that Heinlein too dabbles in the macrocosmic is almost belaboring the obvious. Suffice it to say that anyone who writes a book entitled *Beyond This Horizon* does not have a limited perspective. However, as one might surmise there is more of a clash than a meeting of minds here. The philosophical gulf can't be bridged.

Let us take Heinlein first. Although widely considered to be the dean of modern science fiction, his preeminence comes more from his iconoclasm than the emulation of others. Who else would dare literalize the sacrament by making cannibalism a deeply religious experience as he does in *Stranger in a Strange Land*?

Even more astonishing is his ability to create such different worlds while using the same literary device—the individual here who either saves or fights mankind and less dangerous enemies. As Knight sees it, "Heinlein's greatest asset . . . is this same perennial here—essentially he's Heinlein himself, and Heinlein likes himself."[22] One would laugh at this barb were not its autobiographical thrust so true; but what else can one say about a man who lives within the same kind of futuristic fortress in California as his protagonist Jubal Harshaw does in *Stranger*?[23]

While his heroes may be as different as the paraplegic Waldo and the adonis "stranger" Michael Valentine Smith, one element remains constant throughout—their intrinsically individualistic-anarchistic way of doing things. Symbolically, this can best be seen in Heinlein's omnipresent prop, the cat. Proud, vain, imperious, these feline creatures strut across Heinlein's tableaus with such regal names as Petronius the Arbiter, Pirate, and Dr. Livingstone, the latter two evoking visions of pioneering and daring. The characters' names are no less blatantly individualistic—Andrew Jackson Libby and Daniel Boone Davis evoke similar visions.

Some critics resent this. James Blish remonstrates that "the political conservatism of Dan Davis . . . has intensified into a reactionary radicalism indistinguishable, except for the intelligence with which it is defended, from the positions of the John Birch Society and the Minutemen."[24] However, this more a matter of ideological preference than a literary shortcoming. Where the criticism assumes greater cogency is in its attack on the ethical or normative underpinnings of the envisioned future society. As Bloch laments, science fiction writers "go to marvelously clever lengths to paint a convincing picture of a complex, intricately-ordered future society; complete, in many instances, with every technological advantage. . . . But when it comes to a question of personal ethics, when it comes to a question of social justice—again and again we run right smack into our old friend Mike Hammer in disguise."[25] How is a future argument settled? "With the same old punch in the jaw."

Insofar as Heinlein is concerned Bloch is correct. In *Beyond This Horizon* Heinlein posits an Earth free of poverty, pain,

and disease with "the ancient causes of war no longer obtaining." Nevertheless, most males are armed with lethal weapons and the mere breach of etiquette is enough to cause a duel. Those who are voluntarily "brassarded" are immune to challenges but are socially inferior. When the major character Hamilton Felix begins to "have doubts about this whole custom," his close friend insists he remain armed for "the brassard is an admission of defeat, an acknowledgement of inferiority." As if this were not morally repugnant enough, Heinlein offers a "positive" rationale as well: "an armed society is a polite society. Manners are good when one may have to back up his acts with his life. For me, politeness is a sine qua non of civilization. [Furthermore] gun-fighting has a strong biological use" (!) Incredibly, Heinlein makes no attempt to resolve the contradiction between the lack of causes for belligerence and the rampant killing in his "Utopian" society.

At first glance Heinlein's philosophy seems to be a curious blend of Nietzsche and Rand. That he envisions a superman emerging from the canaille of the masses is patent as his character expounds in "Gulf":

> "Rarest of all is the man who can and does reason at all times, quickly, accurately, inclusively, despite hope or fear or bodily distress, without egocentric bias or thalmic disturbance, with correct memory, with clear distinction between fact, assumption, and nonfact. Such men exist, Joe; they are 'New Man'—human in all respects, indistinguishable in appearance or under the scalpel from homo sap, yet as unlike him in action as the Sun is unlike a single candle."

But in the final analysis, what does this "homo novis" stand for? The Professor who leads Luna's rebellion in *The Moon is a Harsh Mistress* explains that he is a "rational anarchist" who "believes that concepts such as 'state' and 'society' and 'government' have no existence save as physically exemplified in the acts of self-responsible individuals. He believes that it is impossible to shift blame, share blame, distribute blame . . . as blame, guilt, responsibility are matters taking place inside human beings singly and nowhere else."

As an expression of individualism this is perhaps the ultimate

but by no means the only such viewpoint among science fiction writers. As a matter of fact, Amis bemoans the situation prevalent in science fiction where "there is almost no trace of the tendency to rate the interests of the group higher than those of the individual."[26] In another context he remarks that "the general run [of science fiction] is so firmly American that British science fiction writers will often fabricate and fill their dialogue with what they believe to be American idioms."[27] Unfortunately, Amis misses the correlation between his two seemingly disparate points, a profound correlation which Clarke inadvertantly highlights. Perhaps alone among British science fiction authors he shies away from Americanisms both literary and material. The first moon shot is coordinated by Great Britain in his *Prelude to Space*, while the *Deep Range* centers off Australia, and it is no coincidence that his philosophy has a decided anti-individualistic tinge to it as well. To be sure, Clarke offers an occasional standout "here"—Tom Lawson saves the day in *A Fall of Moondust* with his quick thinking—but more often than not it is only through the group that anything gets accomplished. For once Amis is wrong and it is particularly surprising that it should be here: being British himself he overlooks Clarke and most surprisingly offers no explanation to the phenomenon for which Clarke is the exception.

From the American perspective, however, the explanation is clear enough. By the end of the nineteenth century America had run out of worlds to conquer. With the "Wild West" subdued America abortively turned its hand to a limited form of colonialism but its national creed of self-determination would not allow that path to be pursued with the same zeal as was the western road. Now, however, new vistas are opening up—outer space has become America's new frontier. Literarily, the trend is increasingly obvious—science fiction is becoming the literary, if not actual, successor to the "western." This is a healthy turn of events because our collective imagination thus becomes focussed on the challenges of the future rather than the myths of the past. Unfortunately, in Heinlein as in most other science fiction writers—British or American—all the unnecessary literary baggage has been taken along too.

Instead of the rugged pioneer building his own log cabin[28] we

now find a superficial transformation to the heroic, genius spaceman who, as in *The Puppet Masters*, staves off hordes of alien invaders (read Indians). This will just not wash. Heinlein is trying to be the twentieth century's James Fenimore Cooper but the times have passed him by. Not only is it still doubtful whether the frontier ever bred the individualistic spirit and that individualism was the most feasible philosophy for taming the west, it is still more ludicrous to think that such a philosophy can be viable in the far more complex society and alien environment that modern and future man will have to face, both here and in space. As fantasy this view can perhaps entertain (with increasingly diminishing returns); as a viable philosophy it is naive and dangerous.

Clarke, on the other hand, emerges from a heritage unburdened by what Louis Hartz terms the "dogmatic liberalism" of the "Lockian creed."[29] Nor has he fallen sway to the American cultural onslaught on Europe. Clarke is no dogmatic socialist but neither is he shackled by dogmatic individualism. Consequently, *Prelude to Space* drums on the theme of the team effort necessary to ensure the success of such a monumental project as a moon shot. If anything, this book is unique in its total deemphasis of the individual. Similarly, *Islands in the Sky* continually harps on the idea that a group effort is the only means of ensuring man's survival in space, even on such a friendly body as a man-made space station.

This profound philosophical cleavage deeply affects the two authors' treatment of their major themes. The theme of personal death has been a constant throughout mainstream world literature and so it comes as no surprise that its transmutation to the idea of racial extinction should occupy so much thought in science fiction literature where it is handled in a number of ways, ranging from the serio-comical to the philosophic-mystical. Of the former, we find one of Clarke's classics—"The Nine Billion Names of God"—in which mankind's existential purpose turns out to be the enumeration of the aforementioned number of God's names. While one can take this as a cosmic joke, it does serve the more serious end of raising the question as to mankind's ultimate purpose. Clarke subtly shows us that the religious answer—to serve God—is not a very satisfying one. Clarke's *Childhood's End*, perhaps the most

merely to control but to *become* a spaceship or a submarine or a TV network."[42] And he is not joking.

The denouement of this projection is fascinating, for how long could such a partnership last? As Clarke asks, "can the synthesis of man and machine ever be stable, or will the purely organic component become such a hindrance that it has to be discarded?"[43] Clarke readily admits that "if this eventually happens—and I have good reasons for thinking that it must—we have nothing to regret, and certainly nothing to fear." So we now understand what all of Clarke's literary metaphysics are preparing us for—the salvation of mankind through the end of mankind:

> "No individual exists forever; why should we expect our species to be immortal? Man, said Nietzsche, is a rope stretched between the animal and the superhuman—a rope across the abyss. That will be a noble purpose to have served."

What then lies in our future? In the very short run, perhaps individual genius will alow Man to grow further. In the longer run, only group efforts of racial scope will perhaps save Mankind from annihilation. But in the end, in the very long run, both modes will prove to be of only transitory usefulness. Whether through physical destruction, racial sublimation, or ecological evolution, homo sapien is doomed. For short run purposes, perhaps Heinlein's vision will suffice although that is doubtful. Contrastingly, Clarke's projections ring chillingly true; Ecclesiastes' words echo again. But as Clarke reminds us in his story "The Road to the Sea," "the future is built on the rubble of the past; wisdom lies in facing that fact, not in fighting against it." Let Heinlein writhe and foam; Clarke's vision prepares us far better to face the uncertain future.

NOTES

1. D. Bell, "Twelve Modes of Prediction," *Daedelus*, Summer 1964, p. 873.
2. H. Kahn & A. Wiener, *The Year 2000* (N.Y., Macmillan & Co.: 1967), p. 357.
3. B. Davenport, et al, *The Science Fiction Novel* (Chicago, Advent: 1959), p. 155.
4. K. Amis, *New Maps of Hell* (N.Y., Harcourt, Brace, & Co.: 1960), p. 61. Hereafter cited as *Maps*.
5. Davenport, et al, p. 37.
6. R. S. Allen, *Science Fiction in the Future* (N.Y., Harcourt, Brace & World: 1971), p. 265. Hereafter cited as Allen.

7. Davenport, et al, p. 30.
8. *Ibid*, p. 37.
9. A. C. Clarke, *Profiles of the Future* (N.Y., Harper & Row: 1960), p. xiii.
10. Davenport, et al, p. 65.
11. *Ibid*, p. 66.
12. *Profiles*, p. xiv.
13. *Maps*, p. 63.
14. Allen, p. 287.
15. *Ibid*, p. 290.
16. *Maps*, p. 38.
17. *Ibid*, p. 39.
18. *Profiles*, p. xi.
19. *Maps*, pp. 38–39.
20. D. Knight, *In Search of Wonder* (Chicago, Advent: 1967), p. 191.
21. *Ibid*, p. 190.
22. *Ibid*, p. 80.
23. "Bon vivant . . . sybarite, popular author extraordinary and neopessimist philospher," *Stranger*, p. 80. The inclusion here of "philosopher" suggests that Heinlein has higher aspirations than merely writing to entertain.
24. J. Blish, *More Issues at Hand* (Chicago, Advent: 1970), p. 56.
25. Davenport, et al, p. 149.
26. *Maps*, p. 96.
27. *Ibid*, p. 17.
28. In some cases, an atomic blast is mere pretext to tell the same tired story all over again. Thus, the first half of *Farnham's Freehold* is almost *Swiss Family Robinson* updated.
29. L. Hartz, *The Liberal Tradition in America* (N.Y., Harcourt, Brace, & World: 1955), p. 9.
30. One need hardly mention that rebirth is the dominant theme, too, of *2001: A Space Odyssey* (N.Y., New American Library: 1968).
31. Heinlein's prescience here is astounding. He has these alien invaders come from Titan, Saturn's largest moon. Twenty-two years later TIME Magazine (January 22, 1973) reported: "one case suggests that primitive life may indeed exist elsewhere in the solar system. That possibility was suggested in a recent study of Titan . . ."
32. The method of reaching this conclusion simply from probability is tortuous but it can be put succintly: there are 10^{24} known stars in the universe. Given the conservative estimate of only one in a thousand each having one similar characteristic as our sun with regard to the essentials of a similar solar system, having a planet with Earth's size, of the same chemical composition, and sufficient age, this still leaves 10^{12} planets in the known universe with the same necessary ingredients for life as Earth has. In fact, the question now being asked is not "if" but "when."
33. *Maps*, p. 69.
34. Race here referring to homo sapiens not its subspecies.
35. *Profiles*, p. 223.
36. These last two words of the story are used both in the usual manner and as part of the body of the story.
37. *Profiles*, p. 213.
38. *Ibid*, pp. 221–22.
39. *Ibid*, p. 224.
40. *Ibid*, p. 227.
41. *Ibid*, p. 225.
42. *Ibid*, p. 226.
43. *Ibid*, p. 227.

"science fiction . . . is really concerned with the fictitious society it pictures. It becomes not merely a lesson to us, a text from which to draw a moral, but something that bears the possibility of importance in its own right. When does science fiction become conceivable then? When the minds of mankind are so oriented by circumstance that it becomes reasonable to them that *any* society other than the one in which they live can be conceived of, if not in the present, then at least in the future."[6]

Others seemingly disagree. Heinlein pointedly asks: "Are the speculations of science fiction prophecy? No."[7] This is not as uncategorical as it sounds, however, for in the same breath he continues, "on the other hand, science fiction is often prophetic." What does he mean by this crypticism? Heinlein goes on to explain:

> "There was once a race track tout who touted every horse in each race, each horse to a different sucker. Inevitably he had a winner in every race—he had extrapolated every possibility. Science fiction writers have 'prophesied' so many things and so many possible futures that some of them must come true."

Heinlein doesn't seem to realize it but there is a causal fallacy in his reasoning rendering his analogy specious. Whereas the tout's actual prediction will never have any bearing on who actually does win the race, the science fiction writer's illustration, prediction, or novel social construct can, and indeed has at times directly led to the actual invention or realization of the thing written about. Heinlein himself admits that "science fiction not infrequently guides the direction of science."[8] To give just one major example, way back in 1945 Arthur C. Clarke first put forward the idea of orbital satellites for global television. One might argue that he did it in his role as scientist, not science fiction writer, but this is hardly relevant for as he suggests, "almost 100% of reliable prophets will be science fiction readers—or writers."[9]

Some carry the argument against science fiction as a medium for futurist prediction further. C. M. Kornbluth, whose *Space Merchants* is an acknowledged science fiction classic about the advertising industry and conservation (written ten years prior to Rachel Carson's *Silent Spring*) wrote an essay in 1957 entitled "The Failure of the Science Fiction Novel as Social Criticism."[10] His critique was long and involved but in the final analysis depended more on empirical history than intrinsic logic. Simply put, it boiled down to the statement that science fiction *must* be socially impotent because historically it *has been* socially impotent. The latter, of course, is at best highly dubious. He dismissed *Brave New World* and *1984* among others because he felt that here "the science fiction values swamped the social criticism," a very arguable proposition. It would seem rather that the cumulative effect of the two came not from their futuristic technological ideas, but rather from their nightmarish vision of totalitarianism and mind control. Yet more importantly, his argument—it has not, therefore it cannot—proves nothing for it is tautological. As a matter of fact, one of his examples of socially "potent" literature, *The Jungle,* belies his point. He quotes Sinclair Lewis' rueful comment: "I aimed at the nation's heart and hit its stomach."[11] One wonders why a similar aphorism—"he aimed at the readers' adrenal glands and hit their consciences"—could not be applied to science fiction writers.

So we return to Verne's maxim and have it updated by Clarke: "at the present rate of progress, it is impossible to imagine any technical feat that cannot be achieved."[12] Given that laws of social, political, and economic organization are far more malleable and consequently more amenable to human control than are the physical laws of nature, it would not be difficult to extend Clarke by arguing that it is impossible to conceive of any cultural mutation or social permutation that could not evolve in the future. We thus arrive at science fiction's largest role as Kingsley Amis observes: "its most important use . . . is a means of dramatising social inquiry, as providing a fictional mode in which cultural tendencies can be isolated and judged."[13] It is here that science fiction's theoretical apoliticality stands it in good stead. As Asimov points out, "it is useless to attempt to solve the tremendous problems of our times by adopting one of only two attitudes. Either to resist change,

moving science fiction novel ever written, provides a far more frightening yet sophisticated projection of humanity's demise, being in a sense the logical extension of Darwinian evolution (at least insofar as human mental capabilities are concerned). Naturally, Heinlein presents the issue in more mundane terms. Potiphar Breen, a statistician by inclination, charts the various cycles of economics, solar flares, rainfall, mass psychosis, etc. and comes to the inescapable conclusion that he is living in "The Year of the Jackpot," when all the cycles will trough simultaneously. Global chaos soon leads to its inevitable conclusion with the Sun's explosion and Earth's annihilation.

The contrast in philosophy and treatment is perhaps best exemplified in Clarke's use of the same idea—the destruction of the solar system in "Rescue Party." In "Jackpot," Heinlein's individualistic philosophy leaves no room for a single person being able to save humanity, this being a problem impervious to simplistic solution. In true anarchistic fashion Potiphar withdraws from humanity, and in the end can only act as a witness of his immolation along with the rest of mankind. (Clarke in *Childhood's End* also leaves a witness, but he is a witness to the awakening, not demise, of mankind.[30]) As opposed to Potiphar's psychological withdrawal, both the alien "Rescue Party" and the reader discover at the end of Clarke's story that "the race that we believed had crept to die in the heart of its planet" had instead constructed "the greatest fleet of which there has ever been a record," and had left its ancestral home to build anew. No mention is made of the efforts involved to build this gigantic fleet; could one focus on any one ant when explaining the construction of an anthill? Again the contrast is clear. We see that as a protest against excessive docility anarchistic individualism has its cathartic value; as a means of facing the future it cannot but fail in the face of the scope and complexity of future problems and crises.

While the physical destruction of humanity could be thought of as the greatest potential calamity that could face mankind, one gets the impression that Heinlein suffers from a still greater fear—man's mental enslavement. He treats this theme in a number of places and ways, ranging from the overly simplistic alien[31] body

latching itself on to the human host in *The Puppet Masters* to the subtler loss of personal freedom in *Double Star* where Lorenzo must impersonate the world leader who has been kidnapped. In order to preclude this loss of racial identity and individuality Heinlein declares war on the universe:

> "Whether we make it or not, the human race has got to keep up its well-earned reputation for ferocity. The price of freedom is the willingness to do sudden battle, anywhere, any time, and with utter recklessness . . . if man wants to be top dog . . . he'll have to fight for it. Beat the plowshares back into swords; the other was a maiden aunt's fancy."

While Heinlein's response to the theme of loss of free will borders on mania, Clarke confronts the idea with a totally antithetical emotional placidity. The issue does arise in Clarke's work but his treatment of it is in marked contrast to Heinlein's frenzied ravings. When the Overlords assume global control in *Childhood's End*, only five million die-hards out of a world population of four and one half billion protest the loss of sovereignty. In the face of a peace and prosperity unparalleled in human history, these few "patriots" argue that "we must work out our own destiny. There must be no more interference in human affairs!" There is no doubt that Clarke's sympathies do not lie here. The leader of this faction, Wainwright, is a clergyman and in essence "the conflict is a religious one." This is ironic, for Wainwright fails to see that he is merely lamenting the substitution of one dominant force for another. Had he been smart he could have told his followers that the Overlords were a modern manifestation of the "Second Coming," especially in light of the newfound "security, peace, and prosperity" in the world. He doesn't, and it would not have made much of a difference anyway for as Clarke stunningly shows, human destiny is not in human hands.

To be fair, though, Clarke posits here a much more benign "master" than are Heinlein's Titans. Yet even the presentation of the kind of alien says something about the author's thoughts. Most aliens who approach Earth will have malignant intentions, Heinlein seems to feel (the "Stranger" Michael Smith is an exception to

Heinlein's general treatment), and even if they are concerned about the human race any interference will lead to a loss of freedom which would culminate in a servile existence. Clarke provides a counterbalance to this nightmare, and by arguing that were mankind to be dominated it would probably be by a morally superior being, neatly evades the implications of the issue, if not the issue itself.

Once raised, however, the issue cannot be dismissed so easily. If anything, the future holds the promise of turning this once academic question into an all to real one. Leaving aside *1984*-type human thought control and *Brave New World* sorts of genetic control, it is becoming increasingly apparent to knowledgable observers that the odds in favor of extra-terrestrial life are overwhelming.[32] However, as Clarke intuitively senses, any life form with the intelligence and technology to cross the voids of space must be relatively benign for otherwise they would have long ago destroyed themselves with their incredible power. The literature is fast coming around to this viewpoint as Amis points out: "the malignant alien is passing out of fashion, and any unexpected visitors are more likely to have missionary motives."[33]

What we find here, then, is the difference between simple extrapolation and sophisticated projection. Heinlein is obsessed with present day threats of lack of privacy and loss of freedom of action and so extrapolates present problems into future nightmares. There is a certain utility to this sort of dire warning, but in the end it is Clarke who transcends modern concerns to give a healthier appraisal of what the future holds in store. Why healthier? It is in the nature of Heinlein's philosophy that mankind will be saved by the individualistic hero. But this is only plugging a leak in the dam. What if the right man is in the wrong place? Or more likely, what if the "leak" is too large for one man or group to handle? The "hero emerging in the nick of time" is one of the oldest of literary devices, but as a philosophy for future life this device is a decided flop. One could go further and argue that it threatens to become an outright danger, especially when dealing with issues bearing on the survival of mankind. Clarke sees mankind in toto as being the only savior of Man; Heinlein sees the salvation of Mankind in a man.

Inner growth on a racial level[34]—morally as in the *Deep Range*, physically and spiritually as in *Childhood's End*, and culturally as in *The City and the Stars*—is the answer Clarke offers for facing the perils of the future.

Moreover, Clarke's maturer vision of the future extends even beyond homo sapien as now known. He accepts the end of "mankind" with total equanimity for "the stars are not for Man." In his *Profiles of the Future* Clarke expands on his meaning:

> "It may well be that only in space, confronted with environments fiercer and more complex than any to be found upon this planet, will intelligence be able to reach its fullest stature. Like other qualities, intelligence is developed by struggle and conflict; in the ages to come, the dullards may remain on placid Earth and real genius will flourish only in space."[35]

Whereas for Heinlein the end of the human race in "Jackpot" is both figuratively and literally "The End,"[36] for Clarke it is merely man's childhood's end, a transformation and sublimation of the race to a far higher plateau, having "the sublime inevitability of a great work of art." We have ascended from the apes—why stop there? This suggests the greatest irony in the relative positions of these two writers. Although we have termed Heinlein's philosophy Nietzschean in character, it is Clarke who foresees the development of the true "superman," for what is the Overmind if not Nietzsche's "ubermensch?" It is this that forces us to revise our assessment of Heinlein's philosophy from being Nietzschean to Randian. Heinlein would probably concur. In *The Moon is a Harsh Mistress* Professor de la Paz emphatically declares that "I can get along with a Randite." Waldo, too, has a close affinity to John Galt and Howard Roark in their stubbornly individualistic approach to problem solving. (One could hardly term the paraplegic Waldo a Nietzschean character.) This does not mean that it is Clarke who has captured the essence of Nietzschean philosophy. On the contrary, Nietzsche could never envision a race of supermen emerging directly from the racially mongrelized hoi polloi of the world. Clarke harbors none of these predilections.

Nor does Clarke misunderstand Heinlein's fear of depersonalization. He just cannot sympathize with it, for his vision comprehends the limitations of Heinlein's parochialism. As Clarke argues in *Childhood's End*:

> "The road to the stars was a road that forked in two directions, and neither led to the goal that took any account of human hopes or fears. At the end of one path were the Overlords. They had preserved their individuality, their independent egos . . . and the pronoun 'I' had a meaning in their language. . . . But they were trapped, Jan realized now, in a cul-de-sac from which they could never escape. . . . They were equally helpless, equally overwhelmed by the unimaginable complexity of a galaxy of a hundred thousand million suns, and a cosmos of a hundred thousand million galaxies."

The other path leads to assimilation, but it is an incorporation into nothing less than the cosmos itself. Whereas Heinlein would regard this as calamitous, Clarke serenely says that "this was not tragedy, but fulfillment."

By now the reader may have noticed that the discussion at hand has shifted from the materially futurological to the cosmologically philosophical and finally to the speculatively metaphysical. Yet the latter serves a purpose by providing a framework for dealing with the same theme (the end of Man) from a more realistic point of view. After having roamed the cosmos and plumbed the philosophical profundity of *Childhood's End*, we may be better able to handle Clarke's biggest shock. Whereas the annihilation of the solar system is merely hypothetically possible, Clarke argues that the end of mankind is realistically not too far off in the future: "the tools the ape-men invented caused them to evolve into their successor, Homo sapiens. The tool we have invented *is* our successor. Biological evolution has given way to a far more rapid process—technological evolution. To put it bluntly and brutally, the machine is going to take over."[37] We are not dealing anymore with a possibility; we are dealing with an inevitability, given that man will continue to try to improve his "tool." And even this may not be necessary much longer:

> "One often stressed advantage of living creatures is that they are self-repairing and reproduce themselves with ease—indeed, with enthusiasm. This superiority over machines will be short-lived; the general principles underlying the construction of self-repairing and self-reproducing machines have already been worked out. . . . A.M. Turing who pioneered in this field and first indicated how thinking machines might be built, shot himself a few years after publishing his results. It is very hard not to draw a moral from this."[38]

Let not the import of this be glossed over. Clarke is suggesting that not only will man become economically useless but as a species we will also be physically and intellectually overshadowed—"H. sapiens" will be replaced by "M. sapiens." Where does that leave Man?

> "The short-term answer may indeed be cheerful rather than depressing. There may be a brief golden age when men will glory in the power and range of their new partners. Barring war, this age lies directly ahead of us. As Dr. Simon Remo put it recently: 'The extension of the human intellect by electronics will become our greatest occupation within a decade.' That is undoubtedly true, if we bear in mind that at a somewhat later date the word 'extension' may be replaced by 'extinction.'"[39]

Heinlein's response to this would undoubtedly be: if and when the time comes man and machine will have to "have it out". But Clarke envisions no war nor any surrender, arguing that "the popular idea . . . that intelligent machines must be malevolent entities hostile to man is so absurd that it is hardly worth wasting energy to refute it. . . . The higher the intelligence, the greater the degree of cooperativeness. If there is ever war between men and machines, it is easy to guess who will start it."[40] Instead, the two will merge, "a conception which many people find even more horrifying than the idea that machines will replace or supersede us."[41] We are well on our way to this with mechanical hearts, kidneys, lungs, etc.—the "Cyborg" age has dawned. "One day we may be able to enter into temporary unions with . . . machines, thus being able not