Creative Sociology

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One of the hardest things to get a grip on, from my point of view, is how people behave socially: what people consider normal; what they expect you to do on the street or on the bus or at work or, well, with your whole life; why people who are slow to get these things are written off as human beings, unless they come from overseas, in which case they may get some remedial classes.

One of the several ways science fiction authors deal with this is by inventing societies, either to satirize the foibles of our own communities, or to play about with ideas, explore how a society could be different and still work.

Abstract

One of the several things science fiction authors do is to invent future, alternative, even alien societies – either to satirize our own foibles, or to play about with ideas, and explore how a society could be different and still work. This segues very easily into inquiring how some kinds of people could meddle with other people's affairs, treating their own culture the way mechanics treat cars. How have stories like this worked out?

Some basic assumptions have to be observed here, such as: Human behaviour is different in different places, and at different times, and not obviously rational anywhere, but you can make sense of how humans behave, if you accept that it is patterned, has causes, even without being rational; you can predict, and even influence what people do, if you just observe the relevant factors. In fact, we pay some people good money to do this to us (politicians, preachers, advertisers, con artists, other people like that.

Disposing of Misconceptions

Why explain behaviour? Some of us think human behaviour is obvious, makes "common sense'' and needs no explanation. But apart from demonstrating no sense of history or travel, this attitude fails to explain why those of us living right here and now do the things we do at Easter and Hallowe'en and Christmas; it fails to explain political ceremonies, or the uniforms businessmen wear, or the dress and customs that have become traditional in modern slums.

Some of us, not just immigrants from other cultures, do *not* find much sense in the behaviour around us, and in fact need an explicit intellectual construct to serve in the place of so-called common sense. Much more often, though, people are simply mismatched to the demands placed on them in their own societies; not all graduating eighteen- and nineteen-year-olds, for instance, can be expected to choose our life's work when we're graduating from high school – to know either our own potential, or to guess what professions will be in demand

when we get out of college, or BCIT.

(I also have deep suspicions about what passes for -ommon sense, but let's leave that point aside for the moment.)

Warning: No Satires, Utopias, or Dystopias Here

In case you think I'm going to dive into an endless examination of satires, going right back to *Gulliver's Travels*, or famous novels that no-one reads, starting with Thomas More's *Utopia*, or moralistic fables like *1984* and *Brave New World* … don't. I'm not interested in them.

I'm about to dive into an interminable examination of science fiction and fantasy stories about societies that are slightly, or wildly different from ours; and I want to ask: how plausible, or even how practical, are these societies?

Pseudo-scientific Sociology

(Much of what follows was previously published in the program book of Westercon 44, Vancouver, B.C., July 1991)

A number of science fiction stories actually conceive of a future social science, in which trained professionals regularly describe, predict, and modify group behaviour, on almost the same terms as chemists and physicists work with their materials. So many stories do this that one might speak of a "tradition" or stream of thought in the SF field.

What assumptions do these writers have in common, and what does this kind of writing tell us?

Isaac Asimov's Foundation Series

Probably the most famous such stories are in Asimov's *Foundation* series (conceived and published in the late 1930s/early 1940s). (1) In the far future, when one Empire governs the whole human galaxy, it becomes possible to found a science of "psychohistory." This discipline views mass behaviour as something that can be statistically predicted, on the grand scale, at least for galactic- sized populations, as much as a thousand years ahead.

Despite the fairly rigid picture one gets of "psychohistory," the actual story text admits that crisis points have to crop up, at which political, economic and demographic events might take different directions. In the references to " psychohistory" are mentions of psychological "equations," the use of which is exclusively Second Foundation property.

> … Red symbols glowed out from the gray. [Seldon] said, "That represents the condition of the Empire at present." He waited.
>
> Gaal said finally, "Surely that is not a complete representation."

"No, not complete," said Seldon. "I am glad you do not accept my word blindly. However, this is an approximation which will serve … Add to this the known probability of Imperial assassination, viceregal revolt, the contemporary recurrence of periods of economic depression, the declining rate of planetary exploration …" (2)

Robert Heinlein's stories

We encounter a similar image in various stories by Robert Heinlein, starting in the same decade. However, Heinlein used a somewhat different notion of future sociology. In one story, written in the early years of the Second World War, one of his characters writes:

There is no science of sociology. Perhaps there will be, some day, when a rigorous physics gives a finished science of colloidal chemistry and that leads in turn to a complete knowledge of biology, and from there to a definitive psychology. After that we may begin to know something about sociology and politics. Sometime around the year 5000 A.D., maybe… (3)

I have been told that this rather reductionist, limiting model reflects the attitude of the time when Heinlein wrote. "Solution Unsatisfactory" (quoted above) was written in the early 1940s, and can be considered to reflect a contemporary, reductionist, atomist understanding of "science."

Other stories in Heinlein's future history (written from the 1940s through the 1950s) developed the speculation that a rigorous psycho/sociology, with a formal logic/symbolic system, would indeed be in use by the end of the 20th century. One short story, -Blowups Happen," is set in a fictional fission plant. (For Heinlein's story purposes, writing in early 1940, he assumed that any power-generating atomic reaction was a sustained, barely controlled explosion.) Not surprisingly, eventually the technicians require the attentions of a specialist (who happens to be a man as much at home in semantics and formal logic as in psychology). He explains himself:

"Man lives in a world of ideas. … Human reaction is almost entirely reaction to symbols, and only negligibly to phenomena. As a matter of fact… it can be demonstrated that the human mind can think only in terms of symbols.

"When we think, we let symbols operate on other symbols in certain, set fashions – rules of logic, or rules of mathematics. If the symbols have been abstracted so that they are structurally similar to the phenomena they stand for, and if the symbol operations are similar in structure and order the operations of phenomena in the real world, we think sanely. If our logic-mathematics, or our world-symbols, have been poorly chosen, we think not-sanely.

"In mathematical physics you are concerned with making your symbology fit physical phenomena. In psychiatry I am concerned with precisely the same thing, except that I am more immediately concerned with the man who does the thinking than with the phenomena he is thinking about. But the same

subject, always the same subject." (4)

Eventually, Dr. Lentz determines that the technicians' problem is unsolvable – as a psychological problem. The reactor simply cannot be operated with any reasonable safety, anywhere on the face of the Earth. But it can be operated as a power source off of Earth's surface. To make that solution attainable, Lentz has to correlate, not just psychological, but sociological factors:

> "Very well. Bear with me ..." He obtained a sheet of paper from King, and commenced to write. They watched in mystified impatience. He continued briskly for some minutes, hesitating only momentarily. Presently he stopped, and spun the paper over to King. "Solve it!" he demanded.
>
> King studied the paper. Lentz had assigned symbols to a great number of factors, some social, some psychological, some physical, some economic. He had thrown them together into a structural relationship, using the symbols of calculus of statement. King understood the paramathematical operations indicated by the symbols, but he was not as used to them as he was to the symbols and operations of mathematical physics. He plowed through the equations, moving his lips slightly in subconscious vocalizations.
>
> He accepted a pencil from Lentz, and completed the solution. It required several more lines, a few more equations, before they cancelled out, or rearranged themselves, into a definite answer. (5)

Dr. Lentz has worked out not only the physical, but the economic and political, means to get the reactor into orbit. (In practice, this subsequently means going to the power corporation's board of directors and presenting a two-pronged case: the PR job Lentz and company will use to sell the orbital move as the initiative of responsible, public-spirited executives – *versus* the smear job they will otherwise perform on the board.)

In other stories ("If This Goes On —," "Methuselah's Children"), Heinlein assumed that a symbolic sociological discipline develops, as in Dr. Lentz' exercise, but carried to the nth degree. For example, in "Methuselah's Children," when a secret society of extremely long-lived people is persecuted – even though mainstream culture has undergone several generations of -semantically-sound" education, and social psychologists thought everybody was past this sort of thing – we get the following explanation:

> " ... Eve is in no danger from her neighbors and friends, and I am in no danger from mine. But she is in danger from my neighbors and friends—and I from hers. Mass psychology is not simply a summation of individual psychologies; that is a prime theorem of social psychodynamics—not just my opinion; no exception has ever been found to this theorem. It is the social mass-action rule, the mob hysteria law, known and used by military, political, and religious leaders, by advertising men and prophets and propagandists, by rabble rousers and actors and gang leaders, for generations before it was formulated in mathematical symbols. It works. It is working now.

> "By the time we were sure, it was almost too late. Socio-psychological trends grow or die by a 'yeast growth' law, a complex power law. ... As nearly as we can measure it, the rate has doubled in the past thirty-seven days and the rate itself has accelerated ..." (6)

Heinlein's notions of a rigorous future sociology are less deterministic, more flexible, than Asimov's, but equally programmatic; there is a standard model of functional society, a standard mode of analysis and symbolism, and a class of elite professionals who dispense law, or psychosocial intervention – the distinction is somewhat blurred.

> The judge turned to MacKinnon. "Do you have anything to say for yourself?"
> "I certainly have, Doctor," he began eagerly. "There isn't a word of -"
>
> Bang! The gavel cut him short. A court attendant hurried to MacKinnon's side and attempted to explain to him the proper form to use in addressing the court. The explanation confused him. In his experience, "judge" naturally implied a medical man – a psychiatrist skilled in social problems. (7)

The major difference between Heinlein's and Asimov's speculative social science is that psychohistory is (superficially) almost purely predictive, and relates to the largest statistical groups; Heinlein's symbolic sociology is, apparently, a means of analyzing perhaps any social situation, and planning any intervention you decide upon.

When the "Methuselahs" make their escape, their leaders have to explain the presence of a political leader, who is strongly associated with their persecution. One of their number is asked to prepare a story that is not only reasonably factual, but reasonably acceptable:

> Ralph Schultz hesitated. "The truth of a proposition has little or nothing to do with its psychodynamics ... The notion that 'truth will prevail' is merely a pious wish; history doesn't show it. The fact that Ford really is a martyr to whom we owe gratitude is irrelevant to the purely technical question you put to me." He stopped to think. "But the proposition *per se* has certain sentimentally dramatic aspects which lend it to propaganda manipulation, even in the face of the currently accepted strong counterproposition. Yes ... yes, I think it could be sold."
>
> "How long would it take you to put it over?"
>
> "Mmm ... the social space is both 'tight' and 'hot' in the jargon we use; I should be able to get a high positive 'k' factor at the chain reaction – if it works at all. But it's an unsurveyed field and I don't know what spontaneous rumors are running around the ship. If you decide to do this, I'll want to prepare some rumors before we adjourn, rumors to repair Ford's reputation – then about twelve hours from now I can release another one that Ford is actually aboard ..." (8)

I suppose some technicians talk like this. I don't know psychologists or sociologists who do. (9)

The Psychotechnic League (Poul Anderson)

Poul Anderson's collection, *The Psychotechnic League*, similarly assumes that a symbolic sociology is developed in an alternate 20th century. "Marius," the opening story, does not explain what developments led up to one Professor Valti producing this system – especially in the middle of the world events leading to a late-1950s nuclear exchange. By the time of "Marius," Valti's "matrices" have somehow been used to help plan the successful French Resistance strategy against invading Soviet armies. After the Free French have won, though, they have to start laying policies with other surviving governments, and plan the peace; and the hero of the Resistance, the leader Jacques Reinach, has not been making the right policies. His friend Etienne Fourré goes to remonstrate with Reinach to start listening to his opponents and to Valti.

> "I'm sorry, Etienne." Reinach shook his head. "I simply cannot believe that. Turning human society into a ... what's the word? ... a potential field, and operating on it with symbolic logic: it's too remote. I am here, in the flesh — such of it as is left, on our diet—not in a set of scribbles made by some band of long-haired theorists." (10)
>
> "... The devil with your generals! The common people know me, they know I stand for them first — and hell take your misty futures! We'll meet the future when it gets here."
>
> "That is what man has always done," said Fourré. He spoke like a beggar. "And that is why the race has always blundered from one catastrophe to the next. This may be our last chance to change the pattern."
>
> Reinach began pacing back and forth behind his desk. "Do you think I like this miserable job?" he retorted. "It simply happens that no one else can do it."
>
> "So now you are the indispensable man," whispered Fourré. "I had hoped you would escape that." (11)

While they are talking, Reinach has been isolated from his supporters, and his opponents have staged a coup. Reinach himself was a problem, and has to be removed. But instead of being peaceably retired, Reinach is inadvertently shot before Etienne's eyes.

> ...Valti's matrices were not concerned with a man's heart. They simply told you that given such and such conditions, this and that would probably happen. It was a cold knowledge to bear. (12)

In related stories in the same future history, the nations that survived the Third World War have started to construct a world government. (13) The theory is that

only this will prevent another nuclear war, maybe fifty years down the pike. Naturally this is resisted by nationalists, fascists, and special interests with a stake in national sovereignty. By a generation or two after the Third World War, the United Nations has a thinly-spread intelligence unit operating in a rapidly-changing society. More than that, one Institute of advanced science is using breakthroughs in symbolic sociology — and is wondering what to do with them …

> .. [This] science goes back a long way, actually. Francis Bacon speculated about a genuine science of man. Boole did some work along those lines as well as inventing the symbolic logic which was to be such a major tool in solving the problem. In the last century, a number of lines of attack were developed. There was already the psychology of Freud and his successors, of course, which gave the first real notion of human semantics. There were physiological, chemical, and physical approaches to man as a mechanism. Comparative historians like Spengler, Pareto, and Toynbee realized that history did not merely happen but had some kind of pattern. Cybernetics developed such concepts as homeostasis and feedback, concepts which were applicable to individual man and to society as a whole. Games theory, the principle of least effort, and Haeml's generalized epistemology pointed toward laws and the analytical approach. The new symbologies in logic and mathematics suggested formulations—for the problem was no longer one of gathering data so much as of finding a rigorous symbolism to handle them and indicate new data. A great deal of the Institute's work has lain simply in collecting and synthesizing …° (14)

This is Dr. Tighe, a member of the Institute taken prisoner by a fascist group, stalling them instead of putting a weapon in their hands.

Meanwhile, an assistant of his is trying to rescue him—and talk around an FBI mole in the group, who is far from convinced the Institute is on the side of the angels.

> “I take it you favor libertarian government," he said. “In the past, it's always broken down sooner or later. And the main reason has been that there aren't enough people with the intelligence, alertness, and toughness to resist the inevitable encroachments of power on liberty. The Institute is trying to do two things—create such a citizenry and simultaneously to build up a society which itself produces men of that kind … It can be done, given time. Under ideal conditions, we estimate it would take about three hundred years for the whole world. Actually, it'll take longer." …
>
> "It's a worse tyranny than whips and barbed wire," she snapped.
>
> "You've never experienced those, then."
>
> "You have got that knowledge," she accused. "You have the data and the equations to be – sociological engineers."

> “In theory," he said. "In practice, it isn't that easy. The social forces are so great that – well, we could be overwhelmed before accomplishing anything. And there are plenty of things we still don't know. It will take decades … (15)
>
> "Look, Elena." Dalgetty leaned on one elbow and faced her. "… All right, we've got some special knowledge. When we first realized we were getting somewhere in our research, we had to decide whether to make our results public or merely give out selected, less important findings. Don't you see, no matter what we did, it would have been us, the few men, who decided? Even destroying all our information would have been a decision."
>
> His voice grew more urgent, "So we made what I think was the right choice. History shows as conclusively as our own equations that freedom is not a 'natural' condition of man. It's a metastable state at best, all too likely to collapse into tyranny. The tyranny can be imposed from outside by the better-organized armies of a conqueror, or it can come from within—through the will of the people themselves, surrendering their rights to the father-image, the almighty leader, the absolute state.
>
> "What use does Bertrand Meade want to make of our findings if he can get them? To bring about the end of freedom by working on the people till they themselves desire it. And the damnable part of it is that Meade's goal is much more easily attainable than ours.
>
> "So suppose we made our knowledge public. Suppose we educated anyone who desired it in our techniques. Can't you see what would happen? Can't you see the struggle that would be waged for control of the human mind? It could start as innocuously as a businessman planning a more effective advertising campaign. It would end in a welter of propaganda, counterpropaganda, social and economic manipulations, corruption, competition for the key offices …" (16)

The good doctor is rescued, of course, but his rescuer from the Institute has exhibited phenomenal strength, speed, endurance and perception in rescuing him. He confides that he himself is an Institute experiment, in exaggerating normal human capacities; and again, the Institute is not convinced the findings should be published.

> "It's a discovery of the Institute for which we don't feel the world is ready. It'd be too big a temptation for too many people, to create followers like me." He looked away, into the windy dark. "The scientist is also a member of the society and has a responsibility toward it. This – restraint – of ours is one way in which we meet that obligation.'" (17)

The Moon Goddess and the Son (Kingsbury)

Donald Kingsbury's *The Moon Goddess and the Son* (1986) tackles the question of how one society can understand another, on the *other's* terms, evaluate its problems on *those* terms, and satisfy their mutual security needs, *without*

requiring mutual trust – or rationality. The setting is our own world and our own century, starting a few decades ago. One of the three braided stories in *The Moon Goddess and the Son* is Shantech Conglomerate's attempt to break the Russian-American deadlock, not by new weapons technology but by exposing critical people from one cultural system to key concepts from the other, until they find more successful ways to deal with each other.

Applied sociology in Kingsbury's novel is less a matter of formally analyzing social factors than of applying games theory. Various decision-makers, among them the games theorist Jacob Synmann, want to move the superpowers from Mutual Assured Destruction to some strategy that does not assure their destruction, because:

> "For 200 billion we would get a system that would take them a trillion dollars to beat... But it is buying the fourth iteration of the response to the counterdefense that is not affordable, neither for us nor for the Soviets." (18)

Game concepts aside, much of this story strand explores Russian *culture* as if it were a *program*. From a certain vantage point, perhaps culture (in the anthropological sense) mimics a program: a set of values, laws, and more-or-less patterned actions and responses, passed on sometimes with astonishing faithfulness. One member of the Shantech enterprise, thrown into the role of a Russian political prisoner, finds that it may not matter what *century* it is:

> "Kaissel was visited round-the-clock by agents of Ivan IVs 'private court', the *Oprichina*, by Mongol torturers from the 'authority for the extermination of rebellion,' by investigators from *Cheka*, 'the extraordinary commission for the suppression of counterrevolution,' by the agents of Peter the Great's *Preobrazhenskii Prikaz*... they never let him sleep....
>
> "When Kaissel spent time [at the terminal suddenly installed in his cell] trying to trace the laws against slandering authority back in time... through wisps of paper... and diaries ... and scandal and exile and murder ... and back ... and back ... he came to the splendor of the court at Sarai and a Russian martyr who would not be quiet, swinging in a cage with his tongue cut out and his nose cut off..." (19)

At the same time, the Shantech enterprise is spreading *samizdat* computer game disks in the Soviet Union. Although untraceable to the West, the game's victory conditions impart hidden assumptions that one Air Force Colonel sees quickly — and then keeps to himself.

> "The game forced a man to ask questions. What if those military officers murdered during the [*1930s*] purge hadn't been denounced? ... What if Oshchepkov had been allowed to continue the development of radar ... What if rocket expert Korolev and other aeronautical people had escaped prison? ...
>
> "And at the height of his rage [*against Stalin*], Colonel Savichev suddenly understood the design of the game. It was holding out the goals of the

> Russian soul—the strong and moral socialist world that might have been—and saying: You followed Stalin instead..." (20)

In the end, an accidental nuclear exchange is averted only because Colonel Savichev has been exposed to another of Shantech's computer games — this one implying the "deviationist" concept that an apparent nuclear attack might be an accident, or a terrorist attack—and he is in a position to withhold response.

Cyteen (C.J. Cherryh)

C.J. Cherryh's future history gives a far less nebulous picture of a rigorous psycho/sociology. In Cherryh's "Merchanter" history (outlined in *Downbelow Station* and subsequent novels), interstellar colonies have to force-grow the population and labour force they need, in order to establish a self-reliant state. They mass-produce artificially-incubated human zygotes *in vitro*. These "*azi*" (for "artificial zygote incubation," perhaps?) are selected for useful genotypes (for strength, for immunity to disease, *etc.*), but they are also conditioned from birth with teaching-tapes, in an effort to produce predictable skill levels in azi. Many azi are eventually prepared for independent citizenship. Their conditioning is a set of tools – hypnotic drugs, and teaching tapes – for raising people efficiently, in great numbers, to meet the industrial and colony demands for specifically skilled labour.

In *Cyteen*, Cherryh goes into detail on the workings of the "Reseune" (21) research and production corporation. It not only raises most azi in its interstellar Union, it provides most of the teaching-tapes used throughout the Union by azi and citizens alike; and nearly all technological development in embryonics, embryology, and developmental psychology.

By the time the action takes place, Reseune has accrued so much political power, it is a major official constituency in itself and a nearly-sovereign power. For many years, Reseune is led by Ariane Emory, a prominent researcher and practitioner in prescriptive developmental psychology. Emory is the originator of a "flux-matrix" approach to the creation and management of *mindsets*. (This and other "-set" compounds in the novel seem to mean any group of factors, and anything analogous to a program, which acts on a human being.)

The story of *Cyteen* is, firstly, the story of implementing Emory's "psychogenesis" project – in this case, striving to recover the talent, the mind of a genius, as well as her body – following Emory's assassination. Only later, as the clone grows up, do we discover Emory's further project: -sociogenesis"
– the formation and modification of societies. And all the while, politics and intrigues thicken around Emory the clone.

It is worthwhile to look at the models Reseune staff use in their work. For their practical purposes, azi and CIT (Citizen) mindsets alike are seen as the combinations that "genesets" plus "psychsets" combine to create in people. Reseune's educational tapes are quite open efforts to produce predictable skill levels in subjects, tailored for their sets. Azi are simply as programmed as people

can be, in the Union. Tape training is highly dependable by this period, but in azi, it produces -passive-dependent‖ personalities, not flexible, inventive or independent ones. It also creates a distinct second class of people, who depend on Citizens (anyone not force-raised) for direction. Teaching in this mode, it develops, is very little removed from creating a mind itself, if you start on a child early enough; but the teaching tapes are distinct from the "deepset" tapes, which build predictable personalities. Once individual behaviour can be conditioned, and sanctioned by widespread practice, is it so far a step to conditioning social behaviour? Part of the discourse throughout *Cyteen* assumes that tape-teaching, *à la* Reseune – the means of imparting values and associations, as well as skills and knowledge – turns out to have a powerful influence on the shape of societies.

At one point Ariane junior is presenting an analytical exercise, to speculate how well certain deepset instructions will be passed on in a fictional society. Her instructor says:

> "'I asked Florian and Catlin how they'd interpret that instruction to *defend the base* (*my italics – GS*). Florian said you just build defenses around the perimeter and wait if you're sure you're the only intelligence there. Catlin said that was fine, but you train your people for the next generation. Florian agreed with that, but he said they couldn't all be specialists, somebody had to see to the other jobs. But their psychsets aren't in the group. ...
>
> "'I'd tend to agree with them, except everybody will have to be trained to some extent or you can't follow your central directive and you'll have some who aren't following it except by abstraction. Once you get that abstraction, that growing potatoes is defense, then you've got a considerable drift started. Everything becomes interrelated. Your definition of base may or may not drift at this point, and if I were in charge, I'd worry about that.' ...
>
> "'I've handled that abstraction,' she said, 'so that there is a change like that. Because they're not stressed and there isn't an Enemy early on. But I think you're right, two variables is going to blow everything full of holes.'
>
> "'Maintain would have been a more variable word than defend,' Justin said, 'but defend brings all sorts of baggage with it, if any of your group is socialized. And you say three are. The AJ, the BY and one of the IUs. Which means, you're quite right, that you've got three who are likely going to do the interpretation and the initial flux-thinking; which means your value-sets are going to come very strongly off these three points. Which is going to hold them together tolerably well to start with, because they're all three military sets. And they're likely going to see that 'defend the base' is a multi-generational problem. ...'" (22)

This sort of shorthand terminology tends to make technical conversations in *Cyteen* opaque.

Cyteen is rather like an onion. Behind a story of technology and intrigue in the

future is a story about a child growing up, and struggling for her own identity; behind the story of her training to be Ariane Emory is her detective story, discovering Emory's growing concern with sociogenesis; and at the core, the discovery that a culture may act like a self-perpetuating program … and it might have a serious bug in it.

On a hidden, "delayed-mail" computer file, Ariane senior writes to her clone:

> "You are not my life's work … My life's work is not psychogenesis, but sociogenesis … "I can tell you in capsule form, young Ari, as I have told the press and told the Council repeatedly: but few seem to understand the basics of what I am saying, because it runs counter to short-term goals and perceptions of well-being. I have not been able to model simply enough the complex of equations that we deal with; and I fear demagogues. Most of all I fear short-term thinkers.
>
> "The human diaspora, the human scattering, is the problem. The rate of growth that sustains the technological capacity that makes civilization possible is now exceeding the rate of cultural adaptation, and distance is exceeding our communications. The end will become more and more like the beginning, scattered tribes of humans across an endless plain, in pointless conflict – or isolate stagnation – unless we can condense experience, encapsulate it, replicate it deliberately in CIT deep-sets – unless psychogenesis can work on a massive scale, unless it can become sociogenesis and exceed itself as I hope you will exceed me. …
>
> "One must pass the right things on. Experience is a brutal and imprecise teacher at best. "And the time at which all humanity will be within reach, accessible to us – is so very brief. …
>
> "If I had done nothing at all, I foresaw a war that the human species might not survive: too much of it resides only on two planets and depends on too few production centers …" (23)

The Squares of the City (John Brunner)

In *The Squares of the City* Boyd Hakluyt, a fictitious traffic analyst, visits a fictitious South American planned city (Ciudad de Vados), obviously modelled on Brasilia. Gradually it dawns upon Hakluyt that the country, and especially the citizens of Vados, are not only chess-mad; they appear to be pawns in a game played by the President and his leading opponent, with living human beings, both affluent urbanites and the rural poor, on a board comprised of the city; and the stakes are nothing less than the country.

But when pawns are taken in this game, people die.

Many of you already know the conflicts in Latin America between rural, traditional culture and modernism, between general poverty and the affluent few, and these are part of the conflicts played out in *The Squares of the City*. But

other factors come into play. One factor is the subtle way that traffic flow patterns constrain our movements, and potential conflicts. (One of Hakluyt's problems is that the lower-class citizens in Vados have formed a ragged folk bazaar where the elite don't want it to exist.)
Another factor is that the conservative and the popular parties are both using TV broadcasting laced with subliminal advertising to sway the Vadeanos.

As Edward Lasker's introduction and the author's note point out, the events in the novel parallel a real chess game, Steinitz-Tchigorin (Havana) 1892. But the story ends three moves short of the game, as two characters decline to play out their roles to the death.

Vados, the long-time chief executive of this fictitious Latin American country, tried to put a 21st-century city in what is frankly a 19th-century South American client state, and did so by diverting water resources that back-country peasants depended on. Rather than open up more attractive places for the peasants to go, or increasing water resources, the Vadeano TV station and paper foster a virulent class and race hatred against the peasants, not least by subliminal suggestion.

It is ironic that Boyd Hakluyt was inspired to his career by the same man, Alejandro Mayor, who is now the Minister of Communications. Boyd Hakluyt explains at one point some of the basis of hisprofession. He studies people's use of space and the flow of traffic, using equations adapted from hydrodynamics and fluid mechanics. Viewed in that way, people are not individuals but particles in a stream.

> "… I think I do understand, pretty well, what forces are at work. But I haven't had time to explore them, trace them to their source. I've just seen them impersonally affecting the lives of people I know … A few moments ago, when you arrived, I was thinking how different it was to be able to regard Vadeanos as people instead of units of traffic – but you can't separate the two completely. A person is a unit of traffic if he lives in a social group; he's a lot more besides, but that doesn't prevent it. And in a way you can parallel the behavior of people as traffic and people as just people. I'm certain that someone like - oh, Alejandro Mayor, for example, if he'd lived – could develop the kind of math I employ to describe far more general activities than simple point-to-point progress …
>
> "… In fact I had an impression from some of Mayor's early work that he might be aiming for something of the kind. …"
>
> "Señor," said Maria Posador a little faintly, "it is well-known that Alejandro Mayor sought to achieve total control of our people – I myself showed you one method he employed. But are you saying that people can be controlled in this way?"
>
> "People are controlled," I said in surprise. "Look, the man in the subway going to work of a morning has no more real control over his own activities

than – well, than a piece on a chessboard! Because he has to earn a wage, he has to go to work. He can choose his kind of work, within strict limits ...

"What other choices has he? He could quit work altogether, but if he has a family to support, he won't ... So there he is, on that subway train at the same time as everyone else."

(John Brunner, *The Squares of the City* [1965]
(New York: Collier/Macmillan, 1991), p. 267-269)

"... I've done my best to make things better, not worse. Oh, I've been under orders, so all I could do was cushion the blow where I could, but if Vados manages to avoid open revolt within the next few weeks, then he'll get two years of comparative peace – that's my guess – and two years from now the situation will be no better ..."

(*Squares of the City*, p. 270)

"... The sort of absolute system I've been talking about couldn't work unless everyone was ignorant of what was happening. Outwardly there would have to be no change at all in everyday life ...

"We're bound to accept that we're restricted by forces beyond our control. So long as they remain beyond anyone's control, we're all in the same boat, and we don't care. But to be ruled, and to know one was ruled, by people who were controlling those impersonal forces – that would be different ...

"... But what I am afraid of is – let's say the situation where in a restaurant at noon the cooks prepare exactly so many of each different dish, because they know that ... just that number of their patrons will select just those dishes ... You see, there is a subtle horror in that. ..."

(*Squares of the City*, pp. 271-2)

You couldn't rule people totally – they were, as Maria Posador put it, too cussed – unless you were responsible not only for externals like their living conditions, their right to walk the streets in freedom, their binding laws and regulations, but also for far more subtle things: for their prejudices, their fears, beliefs, and hatreds.

I'd been talking wildly about developing mathematical tools ... Now it occurred to me that perhaps I already had some of those tools.

(*Squares of the City*, p. 274)

Blood Games (Chelsea Quinn Yarbro)

In one of Yarbro's novels, the several-thousand-year-old vampire St. Germain can foresee impending civil strife threatening the classical Rome where he has settled. He has, very simply, seen it all before:

"It's not time to worry yet. Oh, I agree. There's much more than simple discontent in the air. We're likely to get a few attempts on Nero's life before long, and then we'll have another spate of executions. It's a common enough pattern. But there will be no real trouble until the Senate turns against him. When that happens, it will be chaotic in Rome."

"You speak as if you expected it!" Kosrozd shook himself free of Sanct' Germain's hand. "Don't you know what could happen to you if there is rebellion?"

"I have some idea," he said dryly. "And I do expect something of the sort to be attempted. … These scrolls," Sanct' Germain said remotely, "talk about a similar occurrence. It took place more than a thousand years ago. There are countless others. Your family was part of one. Mine fell to one …"

"But Rome," Kosrozd protested. "Rome is rich, and rules half the world."

"Not quite half." Sanct' Germain smiled. "Wealth, plenty and power breed their own particular kind of dissatisfaction, and when it erupts, it becomes rebellion, so that the leaders are cast down. If that fails to cure the ills – and it usually does fail to, because the leaders are often very much alike – then the people turn to religion, the more extreme the better. A hundred years from now, unless Rome is tested by another power as mighty as she, religion will become an obsession with her people. Conquest brings its own invisible chains to the victor."

(Chelsea Quinn Yarbro, *Blood Games*
(New York: Tor Books, 1980), pp. 174-175)

In The Country of the Blind (Michael Flynn)

About 1990, Michael Flynn wrote what may be the most rational response to conspiracy theories: a novel in which, yes, a secret society *does* conspire to manage our history and manipulate world events. But they aren't all-powerful; in fact they themselves are subject to laws of human behaviour.

The action of the story follows two tracks: a real estate developer, Sarah Beaumont, and her architect associate investigate a run-down property and some old notes they find there; and the members of, not one, but *two* secret societies strive to mislead or terminate the developer, as her investigations threaten to expose them.

The fun thing about *Country of the Blind* isn't simply watching Beaumont, a self-taught polymath, take on and defeat people who murder by stealth – on their own ground, even. It isn't even the detective/ intelligence chase, as Beaumont works out what is happening. The secret societies suddenly realize *they* were surrounded by rival societies, all unawares, each trying to manipulate society and history to their own ends, each assiduously hiding any evidence of its existence … until Beaumont releases a "worm'' program on the Internet which publishes *all* their databases, and nearly scrambles them all into the bargain. Remarking on how obscure any of this history would be to an average American,

Beaumont remarks:

> "... Personally, I think it started with Thomas Dewey's whole-word method of teaching. ... English isn't Chinese and you can't teach it that way. It just doesn't work. No wonder half the kids in this country grow up functionally illiterate. My own teachers – some of them, anyway – were damn near illiterate themselves."
>
> "I'll bet they all had education degrees, though."
>
> She snorted. "Which meant they knew all there was to know about teaching, except the subject."
>
> "When I was in graduate school," Dennis remembered, "the education prof across the hall from us told me that that wasn't important."
>
> (Michael Flynn, *In the Country of the Blind* (New York: Baen Books, 1990), p. 12)

One of the points made in Flynn's novel was that some of the practices we have called Communism originated in large Western industrial concerns. Frederick W. Taylor in particular is mentioned:

> "He was an engineer who lived at the turn of the century. American industry at the time was faced with a tide of poorly educated immigrant laborers, and Taylor developed a system to boost productivity by separating the planning and the execution of work. Engineers and managers made the plans; foremen and workers carried them out. It ended the old craftsman system, in which the worker planned his own work; and it's been the basis of American business philosophy ever since. ...
>
> "... The difference between Ford and Lenin was more a matter of scale than anything else ... Lenin organized his entire country into one vast Company Town, with all that implies. In plain language, the Soviet Union is the largest capitalistic organization on the planet. ... The average citizen or employee has no effective say in how the organization is run. A centralized bureaucracy makes five-year plans that never work. Internal criticism is not allowed, although suggestions for improvements are encouraged, provided they are not revolutionary. Everyone must be a `team player,' by which they mean: `follow the boss's orders' rather than genuine teamwork. Troublemakers are exiled to Siberia or to meaningless jobs. Or they are terminated ... An interesting choice of words, that."
>
> (*In the Country of the Blind*, pp. 22-23)

One of the key phrases in Flynn's novel, "horseshoe nails", is coined when Dennis French interviews a professor of history about the mysterious paper he found:

> "... Now this is purely off the cuff, understand. But the items I am familiar with seem to be historical turning points of a rather subtle kind. The events themselves were small – by that I mean that few people were involved – but

they had disproportionate consequences. Do you recall the George Herbert poem? `For want of a nail, the shoe is lost. For want of a shoe, the horse is lost.' And so on. In the end a kingdom is lost. Had Richard III not lost his horse, Bosworth Field might have gone the other way, it was that near a thing. And what then? No Tudors, perhaps; and English history becomes something quite different. Well, these events are like that. You see, most individual events have little impact on the overall course of history; but some build, like an avalanche, into consequences that only become evident in hindsight."

"I see. Like Mr. Taylor's attempts to boost factory productivity led to your Managed Society."

(*In the Country of the Blind*, pp. 23)

Like the professor, Dennis French holds opinions on the Managed Society policy, based on his own experience.

"Did I ever tell you? When I was working as a civil engineer, before I took my architecture degree, my company was swallowed by a conglomerate. One of those hostile takeovers they used to have. The new owners sent in new managers to run things; their own people, not a single one of whom was an engineer."

"Let me guess. They were MBA's with financial backgrounds."

"Bingo. My own supervisor didn't know the first thing about strength of materials or Proctor density. You know what he said? `A professional manager can manage any business or function, wherever good management is needed.' Straight out of the textbooks."

Sarah grunted. "It reminds me of that education prof you told me about. The one who said that teachers only need to know teaching, not their subject matter. So, what happened?"

"What do you think? Efficiency went down; waste went up. There was 100 percent personnel turnover within the year. The company went from a money-maker to a loser. Gutted. Just so a corporate staff miles away could hold all the reins of power in their hot little fast-track hands." …

"Judging by the results," Sarah laughed, "someone wants us to be ignorant and unproductive. Maybe Thomas Dewey and Frederick Taylor were part of a conspiracy."

(*In the Country of the Blind*, pp. 34-35)

Flynn's novel picks up its pace when Sarah stumbles on evidence of such a conspiracy – long-concealed calculating machines, which shouldn't have existed when they were apparently constructed, and mystifying, ancient mathematical papers.

Her light picked out the title on one torn fragment. *On the Eventual*

Bifurcation of Highly-connected Dynamic Sets. Great stuff. ...

Index. She pulled the small folder out of the drawer and took it to the table. Holding the flashlight in her left hand, she opened it and tried to read some of the titles in the dim light. *An Optimal Policy for Commodity Purchases Using Integral Simplices. A Branch- and-Bound Approach to the Job Shop Problem. On the n-Space Graph Structure of Iroquois Matrilinearity. Applications of Green's Function to Queues in Semi-Closed Networks. The Dynamical Equations of Ideon Contagion.*

What was all this? Mathematical research? No, not entirely. Some of the titles, she saw, dealt with anthropology or economics. Applied mathematics, then. A peculiar mix; and what an odd place for it! The dates written next to the titles of the papers ran through 1892. The earliest one was 1833: a real wowser entitled *Some Stochastic Processes with Absorbing Barriers* by someone named Jedediah Crawford. ... Sixty years of mathematical papers? A college hidden on the fourth floor of a manufacturing plant?

She pulled out the other folder from the drawer and peered at it in the dim light. *Maintenance and Repair of Babbage Analytical Engines*.

That stopped her. Charles Babbage had been Lucasian Professor of Mathematics at Cambridge University from 1828 to 1839. Any real computer buff knew about him. He had once described a new kind of calculating machine ...

The storage was to be purely mechanical ... but Babbage had in effect described the digital computer. Unfortunately, the actual construction of such "engines" had been beyond the state of mid-nineteenth century engineering art. None had ever been built.

A ball of ice formed in the pit of her stomach. She turned and stared at the darkness where the machines sat. None had ever been built.

In the Country of the Blind, pp. 42-44.

Instead of announcing an historical find, Sarah Beaumont finds herself shadowed and eventually shot at. A journalist helps her to assess her situation:

"There are only eight reasons for murder. We can go through the list, if you like."

"Only eight? I would have thought there'd be as many reasons as there are victims."

"No, only eight. It's the details, not the basic motives, that differ from killing to killing.
...

"There are the impersonal, the emotional, and the rational. As far as the impersonal reasons go, you've already ruled out homicidal mania. What

about someone making a political statement?" ...

"Alright. He was a professional hit man and it was important that no one probe too deeply into his reasons for singling you out. Who hired him?"

"If I knew that -"

"And why? What about rage or revenge? Two of the emotional reasons."

She shook her head. "No. Revenge for what? For bringing off a sharp business deal? That doesn't make sense. Realtors don't hire hit men for things like that." ...

"Okay, what about jealousy?" ...

"Well, folks with an emotional reason for murder usually do it themselves; so let's concentrate on the rational reasons. To gain something you possess. ... Number seven: To cover up for another crime. You're not a witness to anything, are you? I suppose a detective or a reporter or a secret agent might be sniffing around the edges of some dreadful secret and not realize it; but a real estate broker? Not likely." ...

"Okay. Eighth and final reason: To protect themselves from you. ... self-defense is like any other motive. It's in the other person's mind. You might not even know it. You might have done something somewhere that someone somehow perceived as a threat."

(*In the Country of the Blind*, pp. 61-64)

She wrote her thoughts down in schematic fashion, using the fault tree symbols that Abe had taught her years ago. People too often argued in circles, or overlooked possibilities, or even forgot some of their own ideas. Sarah had found that diagramming her thoughts in an orderly way helped to organize her thinking. Abe had called it a fault tree, but she called it a why-why diagram ... He had scoffed at her use of the method for what he called "soft" problem solving. ...

What about Quinn? That's what had actually triggered the attack. What had she learned about him that was so dangerous? He had been a "special-project" statistician for the government before and during the Civil War; and had resigned abruptly afterwards. ...

There was also Quinn's association with the putative Babbage Society. ...

Hold it. She remembered the foolscap sheet with the list of "horseshoe nails." The one Dennis had kept. There had been several murders noted on it, hadn't there? Quinn and the others ...

The Society had built mechanical computers. Babbage engines.

So what? Why keep the machines secret? Especially in such a technophiliac

era as the Victorian Age? Babbage had actually begun public construction of one, but had given it up as impractical. (Or had he?)

Answer: It wasn't the machines themselves, but the way they used them. ...

An uneasy feeling stole over her as she read. There was something peculiar about some of those titles. Some of them were written long before the events they appeared to describe. Well, it's a science's business to predict, isn't it? And if they had been studying history scientifically ... Yet, another tone rang through. Something in the choice of words. Something her literary ear picked out. A sense of mastery and challenge. The anticipation of action, not simply of observation. Of requirements to be met.

They weren't scientists. They were engineers.

... They hadn't been trying to study cultural systems at all; they had been trying to control them!

(*In the Country of the Blind*, pp. 75-76, 79 & 81)

Sarah Beaumont is visited by a fortunate stranger, a member of the Babbage Society who not only explains what the Society is about, but becomes a friend.

"Start the way Crawford and the others started. They were interested in mass behavior. How many acres were planted in wheat versus corn. How many miles of railroad track were in operation. How many telegraph stations. And so on. Data collection was all the rage back then, during the second quarter of the nineteenth century. Reformers like Adolphe Quetelet, the Belgian astronomer, were trying to create a scientific basis for a progressive social policy. They compiled all sorts of figures on population, climate, trade, poverty, education, crime, you name it.

"Then along came Babbage's book, with its rudimentary system theory. Crawford started a small philosophical society to discuss and speculate on Babbage's ideas, and someone got the idea of applying the techniques to the social data they had been collecting. What the Founders discovered was that the data followed predictable mathematical curves. ... And, once the underlying equations were solved – using those Babbage engines you saw – the trajectory could be predicted within statistical limits. ... They developed theories to try to explain what they saw. They weren't always right. Sometimes their errors were ludicrous. After all, it was a brand new technology; and the data wasn't always the best; and their understanding was still too shallow. But they were persistent. Whenever a prediction failed, they went back and studied their models to discover what had been overlooked ...

"The Pareto Principle comes into play. Twenty percent of [the] variables account for 80% of what happens. If you don't believe me, find out what percentage of authors contribute most of the science journal articles; or how many running backs account for most of the yardage gained in football. It's a matter of simplifying the system. We don't need to know what the fifth

decimal place is going to be fifty years from now, as long as we know the trend. ...

"We don't try to change the tides of history, but we do try to surf on them." He chuckled. "As undignified as that may sound. We don't try to stop the flow; we go with the flow. It's much easier to modulate an existing trend than it is to start or stop one. So we make a few minor adjustments here and there to enhance our portfolios. That's all. No major surgery. ...

"Think, for example, what an advantage it was to know decades in advance that isolationism would keep the U.S. out of World War II. That all the other industrial nations would be flattened and American companies would have no serious rivals for twenty years. ...

"They saw a confluence of several trends [by the early 1940s]: the unification of the Germanies and their rise as a scientific and industrial power; the compression of population on her resources after the mid-1800s, leading to a `breakout' cycle. But, with all the easy overseas colonies taken by then, the breakout would be against literate and well-armed European nations rather than, ah, `less sophisticated' opponents. Meanwhile, explosives were becoming exponentially more powerful. Put them all together and ... Well, suppose Germany had had atomic bombs in 1939?

"What would you have done? Stood by, because the forecast might be wrong? Or taken action, because the forecast might be right? You can't stop an exponential trend at the last moment. They did what they had to do. Small seeds. They planted small seeds that they hoped to nurture through the generations. The Society was small and it only operated in the U.S. Their activities didn't carry much socio-kinetic energy ... so they looked for focal points – fulcra, they called them; yokes were the mathematical operators – times where they could get enough leverage over large scale events. They aimed to build the U.S. into a technological counterweight to Germany, to bleed off some of the pressures that were building there. Slavery was stifling our technology, so slavery had to go. The South was a poor, feudalistic, agrarian backwater in a rich, industrial world; but, because of the Constitution, she had a virtual veto over anything the Congress considered. ...

"Seward gave the `peculiar institution' fifty years at most before it expired naturally. No, the Society simply tried to hurry it along the way to its grave. ...

"How? By nurturing the economic forces that were killing it. The Society didn't go out and foment Abolition. They used their power and resources to push hard for the Homestead Bill and Popular Sovereignty. ... A society of yeoman farmers has no use for slavery or great plantations. Crawford and the others, they never planned on a war."

(*In the Country of the Blind*, pp. 110-113)

"Ideas are the key, you see. Ideas – we call them memes – cause learned

behavior the way genes cause instinctive behavior."

"Memes." Something went click. Some of the titles she had read in the Index. "You used to call them ideons, didn't you?"

He blinked in surprise and looked at her respectfully. "Yes. Elementary ideas. Like elementary particles. Protons, electrons ... and ideons. The analogies were all physical back then. Later, when Darwin's and Mendel's works became better known, biological analogies seemed more appropriate. In a way, ideas are like viruses. People `catch' them from each other through communication media. It's a process very much like epidemics. I could write the equations for you, if you like."

(*In the Country of the Blind*, pp. 114)

"Cause behavior?" she said with her back to him. "Cause? No, it just doesn't sit right with me. People are killing each other over it and I just don't understand how it's possible! ... How can you say that behavior is caused by a set of equations, like a ... Like a goddam pendulum?" ...

He shook his head. "You've got it backwards. It's not the equations that cause behavior. It's the behaviors that cause the equations. Get the difference? There's no compulsion. The process isn't deterministic; it's probabilistic. Like predicting the weather."

"An eighty percent chance of coups today across South America," she said waving at an imaginary weather map.

Red chucked. "Something like that."

"But you can't mint an idea and plant it in people's heads!"

"No?" Red smiled. "Ever hear of Pet Rocks?"

In the Country of the Blind, pp. 115)

When Morgan Grimes is killed, Dennis French is kidnapped after a motor vehicle "accident", and she is forced into hiding with Red's faction, Sarah still challenges the society's program; she still sees little to choose between them and their enemies.

"... But don't you see, Red? The means have become the end! Why do they want to domesticate us in the first place? To make us more predictable for their equations; to make us more receptive to manipulation. To simplify Their goddamned arithmetic! If you and your group start down the same path, how long before you adopt the same goals?"

"One hundred and twenty years," he told her. "Plus or minus eight years."

She stared at him. "I don't know you," she said.

In the Country of the Blind, pp. 173.

In a class led by a Dr. Gewirtz, Sarah finds herself pointing out that the famous Baby Boom of the mid- twentieth century was an example of unanticipated spinoff – but a spinoff, she claims, of the American G.I. Bill, not the automobile. Gewirtz has just shot down the latter claim by pointing out his own father and friends "sparked the gals" in the back of horse-drawn buckboards; illegitimate children were simply more openly acknowledged in the late twentieth than the nineteenth century. Sarah points out that people make love with an eye on the pocketbook – and, contrary to expectation, this explains why poorer families have more children.

> Dr. Gewirtz pantomimed surprise. "What? Wealthier people have smaller families? Are you sure of your theory, Ms. Beaumont? Surely, if finance and resources were the root cause behind family size, poor people would have fewer children."
>
> That one she could answer from personal experience. "No, sir," she told him. "Because it isn't a matter of gross resources; but net resources relative to the costs of child rearing. It simply doesn't cost that much to raise a child in poverty," she finished bitterly. ... "And how does the G.I. Bill fit in?" ...
>
> Now she was not in the textbook. ... "Well... It costs more – in time and energy – to raise an urban child than a rural child; so city birthrates are always lower than country birthrates, other factors being equal. ... So, as the country urbanized, the birth rate declined. That trend goes back at least to 1820. Then, after World War II, the G.I. Bill subsidized the costs of modern urban life for a significant fraction of the population. Veterans' preferences made it cheaper and easier to buy a home, to secure a job, to go to school. Since that reduced the `cut' the parents needed for themselves, it increased the residual available for child-rearing."
>
> ... "If you would be so kind as to reduce your thoughts to the poor and clumsy medium of mathematics, your classmates and myself would be eternally grateful. Your transcript shows that you possess a sufficient mathematical background. Be sure to include intangibles in your formulation of costs and benefits. What is the value of an infant's smile? Many a mother – or father, for that matter! – would sacrifice much for such a payment. Show also how the process leaves room for free will, in the form of a probability distribution around the expected value generated by your equations. Use your equations to postdict past birth rates with a standard error of no more than 0.5% for any one year. We will expect your report in, let us say, two weeks."
>
> (*In the Country of the Blind*, p. 192)

Meanwhile, Jeremy Collingwood (Dennis' roommate and Sarah's friend) and a team of academics are studying the information Sarah's worm program has dumped on public networks from the Society databases. The only mathematician to join the team is shocked and depressed when he discovers the Society's historical method works:

> It was not fear of the Babbage Society that was bothering Jim Doang; it was Fate. *Wyrd*. The Norns. The idea that his life was already woven inextricably into some divine tapestry. Jeremy felt surprised at the depth of the man's passion. ...
>
> (*In the Country of the Blind*, p. 313)

Whereas the problem simply does not exist for Herkimer Vane, another member of the team (who is an historian of science, among other things):

> "The time span of the forecast and its precision are also important. As a general rule, the longer the cast, the less precise it becomes. Projecting a planet's orbit over several millennia, who cares if it is off by a few hours? But in the case of a spacecraft flying off to the moon, an error of a few hours is intolerable. Much greater precision is required. But increasing the precision tenfold increases the necessary calculations a thousand- fold! One would quickly reach the point where, even with the swiftest computing machines, the computation would simply take too long ...
>
> "Even if there were scientific laws in history, they would be useless for making predictions. With the number of bodies involved, the solutions would become indeterminate much too quickly."
>
> (*In the Country of the Blind*, p. 316)

As it turns out, Herkimer Vane represents yet another "Babbage society", which operates on the belief that historical processes can be analyzed, but not modified. Until this is revealed, apparently, his job seems to be to put Jeremy Collingwood's group off his society's trail. This may be hardly necessary:

> ... "None of us really believe that some secret cabal has reduced history to science; let alone that they have been controlling it for the last hundred odd years. No, that is quite impossible."
>
> "But -"
>
> "Oh, I am equally convinced that there is a group that has tried to do so. They might even believe themselves successful. We plan to investigate the claims with an open mind. To discover what would motivate this so-called Babbage Society."
>
> (*In the Country of the Blind*, p. 259-260)

> Correlation of Forces and Means. The outcome of a battle, according to von Clausewitz, was determined by the product NxQxV: the number of combatants; their fighting qualities; and all variables affecting the circumstances of the battle. Whoever had the higher NQV emerged the victor. ...
>
> (*In the Country of the Blind*, pp. 506)

Tom Paine Maru (L. Neil Smith)

It may seem a strange concept, but a means for analyzing historical factors, and a means for analyzing a contemporary society, cannot be too far apart. Both Poul Anderson and L. Neil Smith, decades apart, implied some form of social/historical analysis, formalized in a notational system.

> "Praxeology", the gorilla intoned, "the study of `human action' – by extension … of the actions of all mindkind, taking in everything from ethics and epistemology, through sociology and anthropology, to politics and economics …"
>
> (L. Neil Smith, *Tom Paine Maru*, New York: Del Rey Books, 1984)

Not every fictional approach to social or historical analysis is mathematical, in a quantitative sense. The end of the following quote might sound more algebraic, and qualitative:

> "We have names and historical examples for each of the three possible political systems …
>
> "All forms of authoritarianism are paternalistic in nature, usually oppressively religious, with emphasis on law, order, and swift, sure punishment for the miscreant. Majoritarianism, on the other hand … is characteristically maternal, concerned with social welfare, the survival, above all, of the productively unfit at the expense of everybody else. Each system represents an essentially infantile 'adjustment' to cultural and economic reality preventing further development, either in the individual or society - a primary cause of the cyclic rise and fall we observe …
>
> "Individualism is adult in character, representing self-imposed responsibility, steady growth, individual and cultural maturity.
>
> "Peace, prosperity, and progress all grew from the concept of absolute individual rights, under a system of unanimous consent.
>
> "Given the tragedy of human evolution – that, as defense against the agony of birth, the dangerous mechanism of repression developed, functioning in both mother and child, sabotaging while it soothed, like any powerful analgesic – that revolution looks more and more like a miracle.
>
> "… You'll be asked to make comparisons among Hoand, Earth, and Sodde Lydfe, specifically Podfet, Nazi Germany, Stalinist Russia, and Houtty, as opposed to Great Foddu, England, Denmark, and Obohalu. Unlike Hoand, where a relative balance of terror has been achieved, the Sodde Lydfans are, after a long conventional war, about to use nuclear weapons. Employing proper praxeological notation, I want you to tell me why."
>
> (L. Neil Smith, *Tom Paine Maru*, pp. 141-2)

There's an odd apparent irony, you may have noticed, in that L. Neil Smith's fictional anarchocapitalist "Confederacy", where nobody is supposed to impose on anyone else, is where a discipline like "praxeology" develops. Or maybe the irony is in the eye of the beholder; if any culture is the sum of the habits we

are taught to conform to, and in addition we form our personal habits and rarely change them … then it isn't so surprising if, in fact, some observers will find regularities in our behaviour. Ways to predict our actions, and ways to influence or compel us.

Divergence (Charles Sheffield)

A related subject is the analysis of a culture, perhaps as if a society were "hardware" and a culture were its "software".

Charles Sheffield's *Divergence* quotes a fictitious *Universal Species Catalog* on the subject of human culture:

> Culture: Human culture is built around four basic elements: sexual relationships, territorial rights, individual intellectual dominance, and desire for group acceptance. The H'sirin model using just these four traits as independent variables enables accurate prediction of human behaviour patterns. On the basis of this, human culture is judged to be of Level Two, with few prospects for advancement to a higher level.
>
> (Charles Sheffield, *Divergence*, New York: Del Rey Books, 1991)

Conclusions

Attitudes I Have Run Into:

I think I have established that there are, in fact, patterns of human behaviour. Societies are, in fact, complex interactive systems. But the people I talk to don't believe so. Whether or not this is "false consciousness", they see people in individual, not collective or interactive terms, even when they're acting out a dysfunctional pattern.

Maybe that's just a parochial, North American, 20th-century sort of foible.

> "A few moments ago you were saying people were predictable. Does that not imply that they are logical, too?"
>
> "No-o-o … You run out of logic about the time you start taking imponderables like religion into account, or genetic predisposition."
>
> John Brunner, *The Squares of the City*, p. 270)

Laying Conspiracy Paranoias to Rest:

It is understood for the purposes of this paper that any community is subject, at any time, to manipulations by at least one conspiracy or secret society, and often by several. (Dr. Timothy Leary remarked, after field work involving prison society, exile in Marrakech, and the perilous Harvard professional community, that he met up with the same twelve conspiracies wherever he went.) It shall be specifically understood that the Bavarian Illuminati have long campaigned to shape public and professional thought, and withhold certain knowledge and techniques from Western society at large.

Of course, the problem with this is that a dozen or so conspiracies tend to pull in all directions at once, and cancel each other's effects; so also with the Bavarian Illuminati, since they started absorbing all sorts of other secret societies. This naturally suggests that a bit of collegiality might be called for, but the case for it awaits more research.

Critical Assumptions

Asimov assumed, for the *Foundation* series, that very large populations show predictable, sequential patterns of behaviour, over historical spans of time; and that some millennia in the future, mathematical tools would exist to describe and predict them.

Heinlein and Anderson assumed for their future histories, that the factors in social situations could be analyzed, symbolized, and their consequences or appropriate interventions logically inferred. Anderson was far more specific about sources for key concepts, and for analytical tools. Kingsbury assumed the primacy of games theory to model, and intervene in, dysfunctional interactions.

The common picture that these SF authors paint is a picture of a professional, bending over a computer screen, a notebook or some foolscap pages, analyzing compiled sociological data in a form of symbolic logic, or planning a psycho-social "intervention" that way.

By now, as much as fifty years since the Asimov and Anderson stories were written, this image seems a bit facile or reductionist. One is tempted to think that these authors, in their period, confused science with engineering and assumed sociology would conform to engineering standards of practice. (Of course it didn't, but the reasons bear articulating.)

It isn't hard to see the evolution of ideas which led to this professional image. Asimov was particularly given to documenting his reasoning. In one of his non-fiction essays he described the classic sequence of events duplicated with great fidelity in a) the "Glorious Revolution" in England, b) the French Revolution, and c) the Russian Revolution. Other historical/sociological patterns are not hard to find. (24)

I myself wrote a formula for another, fairly classic sequence of events, almost exactly duplicated through the rise and fall of the Ku Klux Klan, in the U.S.; the rise and fall of the *Nazionale Sozialistiche Partei Arbeiter*, in Germany; and the rise (and long-term survival) of the *Afrikaner Broederbond*, in South Africa. I could also cite the classic historical sequence that produces the myth of the Once and Future King, not only in Britain but in several countries across Europe; or the recurring myth that the "real" Czar had escaped from the Court, and was rallying an army to wrest back his throne (a sequence not unknown even in the Roman Empire. But I’ve said all this before.

Granted, the examples above pertain to the largest social groups we have built

– the nation-states. Recurring patterns in much smaller groups, however, have become clearer in recent decades, such as family abuse repeated through generations. When popular nonfiction titles include *Co-Dependent No More* and Wayne Kritsberg's *The Adult Children of Alcoholics Syndrome* (26), at the least, you know that the idea of reiterating, destructive behaviour patterns has sunk into popular culture.

I am not persuaded that a social science as Poul Anderson wrote about it is farcical or ludicrous in principle. (You can persuade me if you like.) There seem to be some practical obstacles, though.

Asimov, Anderson, and Cherryh assume that if a future social science could be powerfully effective, trained specialists might find themselves the only ones aware, concerned, or able to deal with impending social problems.

This raises some automatic questions, at least for a twentieth-century, North American audience. Can we just accept the assumptions in the stories mentioned above, and go on reading? The likelihood of effective social science entirely aside, can we buy the premise that manipulating people and their social behaviour is a fit occupation for anyone? On the one hand, we are not generally prepared to lend credence to the idea of effective psychosocial intervention; there is a fairly common sentiment that social work doesn't work, that you can't effectively change the cultural, prevalent ways in which people interact. On the other hand, we are prepared to be powerfully uneasy, and smell something rotten, around anything that smacks of "manipulation" – and statements that it's "for a good purpose" only confirm that impression. One of Anderson's characters raises the question whether anyone has any business dealing with others this way; the answer of another character is that such a specialist has to assume responsibility, to his society, for his knowledge.

Reality's answer is a bit different. If one examines a number of undergraduate papers in different areas of social science, he can have the impression that anyone at all who studies people has his or her hands full, just to record and tabulate data, and identify what are the operative factors in human behaviour, even in quite restricted contexts. Not very firm evidence, perhaps, but suggestive. From a speculative viewpoint, one is reminded of Tyco Brahe … and astronomers for thousands of years before him … devoting lifetimes just to recording and tabulating celestial motions. Perhaps we have yet to discover a Kepler, or Newton, in our midst. I'm not holding my breath. Are you?

The frequent premise in the stories described above is that qualified professionals in the future, who modify the behaviour of groups it when some criterion requires it, will eventually have to operate autocratically. Probably this owes more to the authors' need to complete and sell a story, than to paternalism. The Competent Man may be an outdated SF hero, but he still sells books.

It might be important to compare the speculative image of social science with the reality; to ask, how does SF social science look to a sociologist? Or, alternatively, why *doesn't* sociology work like engineering?

Originally this paper was conceived to address such questions. But it quickly developed that to survey actual, contemporary social sciences as they exist today could take upwards of a year, and would occupy a full-sized book. It became clear, after even cursory reading, that a proper review of sociological literature would vastly outrun the time available for this essay. Evidently, a general perspective must be provided, and more research is required.

However superficial are the summary articles on sociology, e.g. in the *Encyclopedia Britannica*, we do not get a picture of a science anything like the speculative one in SF stories. Quite a different evolution of ideas has taken place in the real world. From their beginnings during the Enlightenment, various social "sciences" were ideology-driven: "if science can be furthered and machines be designed to produce what people need, better people's lives and promote the general welfare, surely a society can be rebuilt to the same end." This, again, tended to rely on an early confusion between science and engineering, which seems to be a common fallacy still. Repeated movements in this direction ran aground on the same reefs, or were diverted into stagnant channels. (27) Probably the most substantial obstacle was that social phenomena are not like physical phenomena. In our century, the prevailing conclusions about this are drawn from economics.

From the 1940s onward, economic thought in NATO-allied countries was polarized between free-market and state-control schools, as a result of the Depression from the early 1930s, followed by the apparent success of state planning for the 1940s war effort. The case for Keynesianism (economic interventions by the state) prevailed until roughly the late 1970s, in NATO countries and beyond. Keynes' colleague and opponent, Friedrich Hayek, enjoyed more popularity from roughly the late 1970s onward, among "neoconservatives" who then reshaped economic policy. (Personally I blame neoconservatism on Milton Friedman and the Chicago School of Economics.) Hayek's case was that more goes on in an economy, indeed in a whole society, than individuals know—indeed, more than its members can know; that societies work to the extent that people create systems of trade they do not plan; therefore, planned economies are bound to fail, and even frustrate, their goals. (28)

Be that as it may, and in the absence of more data, it appears the progress of real-world social science has not much to do with the speculative picture some SF stories have painted.

Were Asimov, Heinlein and Anderson, from the 1940s through the 1960s, naive or uninformed about the actual evolution of social science? No— not all uninformed, to judge from Andersen's writing. But they had stories to write. And this is the field in which to speculate freely.

What would be the importance of a predictive, analytic social science, anyway? I suspect that anyone who speculates about it has hidden the same motive as drove early social science – the wish to change and better the social machine.

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Notes

1 Isaac Asimov, *Foundation, Foundation and Empire, Second Foundation* (1951). New York: Heinemann/Octopus Books, 1981.

2 Asimov, *Foundation*, pp. 17-18.

3 Robert Heinlein, "Solution Unsatisfactory," *Expanded Universe*, p. t39.

4 Heinlein, "Blowups Happen," *The Past Through Tomorrow*, pp. 90-91.

5 *lbid*, p. 110.

6 Heinlein, "Methuselah's Children," *The Past Through Tomorrow*, pp. 665-6.

7 Heinlein, "Coventry," *The Past Through Tomorrow*, pp. 597-8.

8 Heinlein, "Methuselah's Children," p. 753.

9. It is an observed fact that these professionals cannot use short words in public.

10. Anderson, "Marius," *The Psychotechnic League*, p. 19.

11. *lbid*, p. 24.

12. *lbid.*, p. 16.

13 "Once I was a flaming liberal, a fact which is probably most obvious in 'Un-Man.' Nowadays I consider the United Nations a dangerous farce on which we ought to ring down the curtain. (In justice to it and myself, though, please remember that when I wrote this novella the U.N. had quite a different character from that it has since acquired ...)" *lbid*, p. 284.

14 *lbid*, pp. 187-8.

15 *lbid*, pp. 173-4.

16 *lbid*, p. 175.

17 *lbid*, pp. 195-6.

18 Donald Kingsbury, *The Moon Goddess and the Son* (New York: Baen Books, 1986), pp. 54-55.

19 *Ibid*, pp. 240, 242-3.

20 *Ibid*, p. 249.

21 The major corporation producing and training azi. (Short for "Research Unit"?) Union law and practice permits and encourages azi to qualify for citizenship, after an unspecified period of contractual service. Reseune assumes guardianship of all azi throughout Union, and if they are abused, Reseune prosecutes.

22 C.J. Cherryh, Cyteen: *The Vindication* (New York: Warner Books, 1988), pp. 82-83.

23 *Ibid*, pp. 26-28.

24 Why don't you look up this one?

25 Melody Beattie, *Co-Dependent No More* (New York: Harper & Row, 1987).

26 Wayne Kritsberg, *The Adult Children of Alcoholics Syndrome* (New York: Bantam, 1988).

27 Ernest Becker, *The Lost Science of Man* (1971).

28 "Hayek" on "Ideas," Canadian Broadcasting Corporation, 1990 & 1991.