

Notes on the back story of this letter:

Back in 1981, nearly 41 years ago as of 2022, the *Wall Street Journal* launched a spin-off project called the *Wall Street Journal Magazine*, and commissioned a number of people to write articles for it. One of them was **Hugh Kenner**, then chairman of the English department at *Johns Hopkins University*, and also belonging to the first batch of *PPC* members, namely #103.

Hugh thought about it and decided to focus his commissioned article on the amazingly unexpected applications that **HP-41C** owners were developing for it, most definitely those users who were also members of *PPC* and had their programs published there, where Hugh eventually became aware of them. Hugh titled his finished article

"Calculus"

*With their seven-ounce, hand-held, battery operated, programmable calculators,
these guys can do things that are next to impossible"*

and to my delight, among the many interesting people and their creations, it includes references to me and my *Othello* program at several places, namely:

- p.55 bottom right: "... beat most challengers in a game of *Othello* (a complex version of checkers) {sic !} ..."
- p.58 Side box: "A Smear Campaign - The *Othello* program, by **Valentin Albillo** of Madrid, in the last stages of trouncing an opponent. Machine plays white, and by the last frame has achieved 4:1 superiority.. [...] Successful strategy, well understood by the program, involves commanding corners and edges. Cool and resourceful play will beat the program, but beginners and incautious players are sure to be smeared. A full game (sixty moves) last about an hour." (Includes 4 board positions plus text.)

In order to best create the article, Hugh sent letters featuring a number of relevant questions to several authors of what he considered good examples of the state-of-the-art applications he wanted to mention in his article, and one of those people was **John McGechie**, of *PPC Melbourne Chapter's* fame and my unofficial "mentor", who was one of the pioneers in *41C synthetics* and also author of some pretty unusual applications (e.g., a *41C* word processor, anyone !?).

John did comply and sent a huge letter to Hugh (pun intended), the one featured here, mentioning nearly everything great and small under the sun, and in particular fondly and warmly mentioning me (though Hugh already was aware of my *Othello* program, see the last page of John's letter). Hugh took good note of what John wrote, and also mentioned him in the *WSJM* article:

- p.55 bottom: "*John McGechie, who teaches philosophy at Monash University in Australia, is willing to reflect on why he spent uncountable hours helping develop synthetic programming. He wanted, he says, to see at first hand what goes on in a joint intellectual enterprise. He also suspects that what drove many great literary figures was a similar compulsion, and that good scientists are less rational than they pretend to be.*"

In his 9-page *typewritten* (most unusual ! ...) reply to Hugh's questions - which is dated 9th October but completed on 6th Nov and which you can read in its entirety next - John begins like this:

"Your letter arrived this afternoon out of a clear blue sky, coming as a complete surprise"

and then goes on to describe in extensive detail his experiences with and his thoughts about these wonderful machines and the marvels that particular individuals (and then the community as a whole) were creating with them, commenting on the path to discovery and the exciting challenge to discover even more, all of it described by him as a meaningful intellectual and philosophical endeavour, delightfully adorned with his own personal experiences and nice tidbits of his life.

Matter of fact, it includes what can be considered a short biography enriched with his own personal reflections, which makes for a fascinating glimpse of the mind of this enthusiastic and warm individual, whose thoughts fully deserve to be preserved for the future as a testimonial to his many qualities as an intelligent, cultivated, deeply caring human being.

Near the end of the letter he tells an anecdote from when he was 14 and came home with a school report on which his English master and form master had written: *"Writes and talks too much"*.

Not enough for me. May he rest in peace.



Valentin Albillo, 05-03-2022



9th October, 1980

Dear Hugh,

Your letter arrived this afternoon out of a clear blue sky, coming as a complete surprise. It was like another letter at about the same time last year, from John Kennedy. I had sent Richard Nelson a copy of a locally published journal which had accepted a very long article of mine on the use of calculators in formal logic. As it happened, John had written a program for the HP-67 which did the same kinds of things as the programs described in my article, and had been shown it when he was at the Clubhouse. We have corresponded ever since to my own very great pleasure, and I hope to John's as well. John was good enough to say some quite kind things about my work, and had I been an habitual hat wearer, I would have had to have shifted up several sizes. The same thing happened today. Marvellous for the ego! In token of appreciation I am writing this (had you noticed?) on my Adler typewriter. I usually write longhand when sending letters; it allows the intellectual processes which take place roughly in the top left-hand side of my right hand to operate much more freely than they do when a mechanism intervenes. (I don't really believe that good poetry can be written onto a typewriter either.) So. Thanks for those kind remarks...

The questions you ask are of very great interest, and they are very difficult to answer in any very satisfactory way. I don't think that, whatever our long-suffering wives may think or say, that we are an unusual or peculiarly damned species of our race, rather that the obsession from which we suffer/which we glory in is shared by many of our kind who have never even heard that calculators exist, let alone programmable varieties. I suspect that many great literary figures have had the same kind of affliction, though I wouldn't dare to suggest we belong to the same class. In my first years at university not too long after I had discovered the pleasures of reading good writing, I discovered Thomas Wolfe, and read everything he had written that I could find in less than a week. Like his main character, Wolfe was addicted to writing, filled chests with manuscript to the despair of his literary agent. What was the nature of his possession? At that time of my life I was consumed with reading, and gobbled everything I could find in a kind of intellectual delirium. I suffer from recurrences of it. When *The Tin Drum* appeared in an English translation in the early sixties I read that at a single sitting too, and the same happened with Lawrence Durrell's *Alexandria Quartet* and his more recent novels. I wander. To the topic, then.

I wish you well with the article that has been commissioned. For our art, I have no doubt it will be of the importance you describe. Again, as almost one of the founding fathers (I wasn't even in the rowing boat towed by the *Mayflower*), you are in an excellent position to write of the Club and its captivated members.

Some preliminaries first, which will indicate the kind of background against which what follows is written. No, my work does not involve numerical results at all. The only major contribution I have really made, existing in the small circulation of the *Australian Logic Teachers Journal*, was an almost completely non-numeric use of the HP-19c: "The Hewlett-Packard Pupil: Elementary Logic on a Programmable Calculator." Writing that, and writing the 20 or so programs it contains, occupied about 6 months of intense work, a preoccupation that filled most of my waking time, even when not actually poking at the keys, or revising the umpteenth draft of the paper that recorded it.

Your specific question: why am I "deep in synthetic programming?" has a perfectly good Mallory answer: because it is there! but that's not of course any kind of explanation. (The art of making clinker built boats is there too, but has never turned me on...) Successful explanations commonly turn on well chosen, structurally adequate analogies and metaphors - the annexation for the purposes of explanation by redescription of an articulated vocabulary with well understood connotations which finds its natural home in the characterisation of one domain for the purposes of description of the analogous metaphorically likened domain. The transferred language in its new home then suggests, carrying the implications of its original area of application, new ways of exploring features of its new subject matter that would not have been suggested without this redescription. I'll come back to this later.

So, some background first. (I hope you don't happen to be one of those pedants who wrongly demand a verb in every sentence?) I don't know, of course (of course!) what knowledge you have of contemporary Anglo-saxon philosophy, but the current tradition is one whose practitioners pay great heed to the traps and perils of the language they use for the formulation of questions and their possible answers. In this there have been excesses in the recent past, though not actually enough to warrant the contempt often expressed in referring to those excesses by those suffering from counterpart excesses, appearing to them to be totally appropriate. I first became interested in philosophy while an undergraduate engineering student (intended as a civil engineer, though never really believing it), and probably recognised then what I would be doing much later in my life. Abandoning that course after about three years as a full-time student, I spent two years as a cadet telecommunications engineer in the New Zealand Post and Telegraph Department (I was born in Auckland, and lived there until I was 22). That was during the Korean war, and while, as it seemed to me then, the world was in imminent danger of blowing up around our ears (I knew some of the science fiction scenarios of the then future world, most of them horrific), I had to deal with many pompous members of the self-elected Auckland aristocracy using privilege to get their new private telephone exchanges installed out of their turn. What was wrong with this world? Muddle-headedness, mostly, I thought, the natural disposition of people not to think clearly and self-critically through the problems that confronted them, seeing their affairs in some kind of perspective. Mostly - unaware irrationality. How to remedy the situation? To foster the use of critical dispassionate self-appraisal. And more of that kind of thing... Granted that, of course, the immediate task was to bring it about that I myself should come to be as it seemed to me that the influential, power-wielding members of our society should be. How to secure that, then? Not through spending my days on the planning of PABX systems, or on the determination of telephone routes through mostly used pairs of wires in multiconductor telephone cables. Study and hard work was one way, and of history, English and philosophy.

I never actually got around to that history and English in any formalised context, but when I finally left New Zealand for good in 1951, I studied philosophy and some psychology in Western Australia. How that actually came about is not particularly relevant. Four years later they thought well enough of me to award me a postgraduate scholarship that sent me to Oxford to read for the B. Phil., and then to an appointment at Melbourne University, then the best department in Australasia. My main areas in philosophy were in the philosophy of science, formal, and what we now call philosophical logic, the philosophy of mathematics, cosmology (my Oxford B. Phil. thesis was a study of the Oxford mathematician and theoretical physicist, E.A. Milne's cosmological system) and I had made a special study of Kant, still a delight.

In the period before I went overseas to England, I worked in the X-ray engineer's laboratory of the Royal Perth Hospital, and for the first time in my life carried through an applied research project to a successful completion. I developed apparatus, using the then little-known techniques of Xerography, which could be used for radiography. I still have x-ray pictures in two colours of my wife's hand, xerographic photographs I took using an old half-plate camera of those I worked with, x-ray photographs of radio tubes in several colours, and so-on. There are under-explored applications of xerographic methods that are now hardly known, eclipsed by their use in photocopying.

That experience forced me to notice a radical difference between what philosophers of science, even the most distinguished in the field, said went on in the pursuit of science, and the actual patterns of investigation and experiment in a real laboratory. Again, that led me to wonder why there should have been such a difference. The myths that scientists themselves believe about their art are quite incompatible with their actual practices, myths that often, amusingly, turn out to be no more than fossilised remains, frequently bowdlerised, of the fashionable philosophical theories of the nature of science and scientific inquiry of one or two generations of ideas back in the past. (This is still true, though not now to quite the same extent.) C.P. Snow's myth of the two cultures, influential in university education twenty years ago, is much more of a myth today. Those in the sciences who are more than sophisticated technicians of science, are more philosophically literate and critical than they once were, and those on the other side are more scientifically literate than once they were. At the same time they are less likely to be 'blinded by science', awestruck, not so much by the nature of the scientific disciplines as by the beliefs about their activity as science's practitioners. I suspect that the worst person to ask about the nature of a discipline is one who is himself a practitioner in it.

It wasn't very long after this that I began to notice that those in my own discipline were unaware of the same features of their own specialties. In this I myself was involved in a process of conceptual change that was occurring in the philosophy of science itself. You probably know of Thomas Kuhn's *The Structure of Scientific Revolutions*, and you may have heard of Paul Feyerabend, whose fairly recent *Against Method*, while incoherent in parts, topples many of the old philosophical idols.

The main feature of this shift in thinking about the nature of scientific inquiry consisted in a realisation that many of the factors that influence the choice of methods of experimental design, the specific kinds of theory construction, were not, as had been supposed, dictated by cool critical observation, uncoloured by fashion, but that their sources were sociological, always coloured to an extent that scientists themselves were unaware of, by the ideals of observation and theory type of the influential heads of social groupings of scientists. Much, though not all of this new and revolutionary way of viewing the sciences is to be found in Kuhn's book (first published in 1959), more of it is to be found in many places, but especially in Paul Feyerabend's writings.

The same is true in philosophy, and also in the study of formal and philosophical logic. Those whom one would expect to be the most rational, it would seem, were themselves unable to operate in accordance with the precepts supposed to be the foundation stones of their own principles of professional practice.

I can't claim with a good conscience that this is all dead right, of course, but to the extent that it is it requires a healthy scepticism about the principles that one supposes regulate one's own

practice. More than that it effects a certain liberation, as I suppose it may be called: aware of the extent of arbitrariness in the selection of frames of explanation, one is at liberty to try differing varieties on for size, selecting, sometimes, to suit the occasion, that which meets the immediate need, shifting to another to distance the perspective afforded by the first, then returning to it once more to see it afresh, noticing facets previously concealed. Deep-seated convictions of the correctness of one manner of representation, tending to be rationalised by the current myths about the nature of one's own discipline, must then seem quite unreliable, and there should be expected to be a waning of normally unwarranted dogmatism.

My main interest from the time I became a professional teacher of the subject in 1957, until I returned to Oxford in 1964 to complete a doctorate, was philosophical logic, though that descriptive term for it only really came into use in the late sixties. I spent the first part of that first sabbatical year (I had joined the Monash staff in 1961) working on a special set of problems in the philosophy of mathematics, and then worked furiously on my doctoral thesis proper, completing it with only a few days to spare. In that I found myself viewing the disciplines and theories of logic as I had until then been thinking about the philosophy of science. I came to see it, though I could not have so described it at the time, as an empirically founded investigative science, supporting, through its specialised technical vocabularies, theories about the nature of its subject matter which its investigators were unaware they held, and being unaware, could not subject them to critical appraisal in the manner that self-consciously held theories are able to be appraised, and should, at least from time to time, be appraised. That doctoral thesis later turned into a monstrous book, still incomplete and uncompressed that I may still revive, but which occupies at present a single drawer of a filing cabinet in my room at Monash.

That is one side of a way of viewing this totally consuming obsession with programming, but there is another side for me: the concern with abstract structures.

In the early seventies I spent more of my research time on questions in the borderland between the philosophy of mathematics and the philosophy of logic. That Oxford doctoral thesis, as I much later realised, had been the outcome of viewing the activities of logicians in the way in which philosophers of science had come to view the activities of scientists, while being concurrently aware of the possible thralldom of the theories implicit in the descriptive vocabulary I was myself using in detailing and pursuing my own investigation. Part sociologically determined as they were, they were doubly fallible, and best used self-consciously. Here, of course, had emerged some of the fruits of being a student in philosophy in the Oxford of the fifties, most strongly influenced by the most powerful figure there at the time, though now not paid the attention he still deserves, John Austin.

Like many students of philosophy at that time, I had read Russell in careful detail, and was familiar with the early history of the analytical movement starting with Moore and Russell in pre-war (WW I) Cambridge. Later at Oxford I began to understand Wittgenstein's *Tractatus*, and the later writings, but the theories of the nature of the representation of states of affairs of the *Tractatus* took a fairly permanent hold. It is substantially correct, I think, that in order to think fruitfully about a complex subject matter it is necessary to operate with a means of representation of it. Much of the *Tractatus* is preoccupied with the troubles of this idea as applied to natural language, the more so when the structure of language is supposed, as it was by the early Wittgensteins,

to conform to conditions laid down initially in order to effectively characterise the currently fashionable (in the above sense) beliefs about the nature of mathematics: that every mathematical domain could completely be characterised by a set of postulates. That belief came to grief in 1931 with Gödel's work. The paramount question, it then seemed to me was: what are the conditions that need to be satisfied by a system of representation for it to be adequate? Add to that the Kantian maxim, and the conclusion comes to be that in perhaps any account, effected by whatever means, of any domain of inquiry, there will be features of the object of that inquiry, of the subject matter of that inquiry, attributed to it by the very means of representation. Some of what seems to be the case so seems only because what is the case is represented in that way, and is due to the way, not to that which is represented in that way.

If you are with me so far, you will see how I find myself viewing our programmables: inside them there are microcircuits and chains of circulating pulses. The microcircuits are so arranged that the treatment of those circulating impulses will mirror operations we carry out with our arithmetical notations. The way in which the mirror operates is of exceptional interest, for it is not just the coding of those internal states of the calculator onto the ciphers in the display that is involved, but the coding through the ciphers on the keyboard and the display onto that with which we are dealing when we apply our machines to the solution of a problem. How much does our thought about that with which we deal in the applications of our machines come to be constrained by the nature of the representation by the patterning of sequential states of our calculators? Further than that, what kind of influence on our thinking is due to the current descriptive vocabulary employed in the thinking behind the design of our machines, for if features of the machine structures play a part in how the world will seem to us to be, then how we represent to ourselves those machine structures will influence how the world will seem to us to be.

Recall Sir James Jeans exclamation that God must be a mathematician - and what led him to such an odd remark (not even heaven can help us if He is like some mathematicians of my acquaintance!): Jeans, in the scientific culture of his time, habitually represented physical processes and transformations by mathematical models of those processes. He saw in the processes features of their means of representation, and since there is a long tradition, going back to the Pythagoreans and further, to describe represented physical processes as if they were the mathematical structures that are used to represent them, found God in the distance with a slide rule tucked in His breast pocket. (In our time, perhaps, there will be a disposition to find an HP-41c in God's hand...)

The whole operation that goes on in us when we succeed in making an application of our machines is fascinatingly complex. There is the coding of the internal states of the calculator onto the keys and the display, dictated by the notations of the programming language, itself a means of representation of operations within a structure designed to model arithmetical transformations themselves in turn intended to effect representations of physical processes...The programmer, attempting to find a solution to a problem by writing a program, manipulates a means of representation of microcircuit state alterations which will allow sequences of such states to represent sequences of states of the world. The simple theory (relatively speaking) of Wittgenstein's *Tractatus*, attempting to argue from the coding of elementary sentences onto states of affairs, whatever errors may be inherent in it, has to be applied to every stage in this complex account.

Now, perhaps, I can address myself to your question: why the fascination, why the almost complete captivity by the calculator, and why the captivity by the computer (it is the same captivity)? It affords, I think, what has the reputation of being a complete, automatic, general, adaptable, partial or complete representation of the world, or of crucial features of the world, over which the owner has complete control. He may so manipulate it as to provide a model of the world, or of some features of the world, chosen by its owner. Since there is the disposition to think the model, perhaps confusedly, to actually be that which it represents, it comes to be, for its manipulator, that which it represents. We all have the Pythagorean disposition.

So, I suspect, it is for synthetic programming. With this blurred double vision, we find, suddenly, Bill Wickes has been handed, or has discovered the tablets of Moses; at last the inner mysteries of the hidden workings of the world are revealed to us. We may manipulate the world, possessed as now we are, of its innermost secrets. Vicariously, the dreams of the alchemists have come true. We know the real names of things, and through our command of those names, the world is open to our control. No Rumpelstiltskin can ever threaten us again, now we know the command structure that will control.

If that is not dead right, it is perhaps on the right track. Its interest for me (since the means of arrival at this kind of explanatory account seem to conform to the kind of account I would give of the nature of theoretical inquiry), as professional philosopher of science, consists in my being able to observe in myself the processes of thought and discovery, theory building and appraisal and testing that occur not only in the sciences, but continuously in the intellectual life. Having been involved in the development of synthetic programming in a small way, I have been able not only to observe the operation of a Kuhnian process, but actually been a participant in one, able to observe the social process the better, since I have been inside it as well as first-hand observer of it.

That's the general theoretical explanation, then, that I would give were you to have asked me the question that you did - but there were in my own case, extrinsic, accidental circumstances that led to my involvement. Since they are connected with your discipline, they may amuse you.

Ever since the late sixties, here in Australia, and particularly in Victoria, the terminal secondary 'qualification', known in most Australian States as the Higher School Certificate, has had in the English syllabus and thus in the examination, a component known as 'clear thinking'. In Victoria that component was first introduced in the forties, and by the sixties had become moribund. English has always been a compulsory subject for HSC (as it is usually called), for that qualification used to be the Melbourne University matriculation - i.e. entrance examination. When we came to have first two universities in Victoria, with the founding of Monash in 1958, and La Trobe in 1964, the former Melbourne University matric became a necessary condition of admission, though with demands on places, not a sufficient condition.

The educational reformers got their hands on English in 1968 - 70, and poorly taught and inadequate and distorting though it was, the old clear thinking section of the English syllabus had a severe drubbing.

As you will see from the early part of this bloated letter, that was my reformist and crusader's area, and I very much became involved in fighting to save at least the best features of that part of the syllabus from the (as I still believe) wrong-headed reformers. English was, and still is, a compulsory subject in HSC, and every year some 25,000 students were studying that syllabus.

An academic colleague, Camo Jackson, who had been one of the principal founding fathers of the 'clear thinking' component in the forties, and I did our best to save this, but thanks largely to indifference on the part of our fellow philosophers, and culpable ignorance and indifference on the part of some English academics, the educational reformers had their way with the component, manoeuvred Camo out of the Panel of examiners for the subject, and started to treat the area as a training ground for the advertising executive: the objective confusedly thought of as providing a skill in judging the effectiveness of various means of persuasion, removing the critical component. I first joined the team of markers for English, and was invited in by the reformers to become the chief examiner in the section the next year - mainly as a result of my producing a severely critical appraisal of the 1970 examination questions, and of the guides for the marking of the scripts that resulted.

From 1971 to 1978 I continued in this role, working with a marvellous team of English teachers, involved in the setting of the whole paper, the moderation of the examination. A monstrous operation, with a team of about 120 markers, 35, or so of whom were under my supervision. I was appointed as chief examiner in charge of English for 1979 when disaster struck. I won't go into detail, but there had for years been a tendency for teachers in the High schools to try to beat the system, to train their students to answer the kinds of questions that were set, supposed to test the skills they should have been cultivating, rather than to cultivate those skills. You will be familiar with this kind of process: Let's Beat the System.

The 1978 examination questions, though there had been explicit warning, required the exercise of those skills. The students actually gobbled them up. The performance, cut off from mechanical guiding precepts, was better than in any past year, but our mistake consisted in our not anticipating that the teachers, reading the question paper, would suppose them to be difficult. There was a big public fuss, the exam scripts were assessed by the editors of ^{**} newspapers and by teachers culpably ignorant of the nature of a public examination, and the aims and terms of reference of this one, and the head of the Victorian Universities Examinations Board which runs the examination gagged us, and effectively admitted our veniality. The same man was the head of the new institution taking over that examining role, and at the start of 1979, finding no support from my fellows on the English Panel, I withdrew. It had taken me half a century to find that my academic colleagues, many of them, were not driven by the kinds of intellectual ideals I thought myself to be powered by, and seeing the power struggles going on, I found myself unable to continue.

During those years I had written the standard examiners' manual for the examination, describing the nature of the assessment process, the nature of the examination, the objectives and nature of the English studies in the syllabus. The same manual is still in use. I had introduced programmable calculators into the moderating process in 1976, first with the HP-55, then the HP-25, and the 19c. It reduced the turn-around time from the marking of a batch of scripts from two days (all clerical work is done by computer - 75,000 scripts, each double marked, marked again where there was an unacceptable discrepancy) to 2 or three minutes. From 1971 to the end of 1978, and even up to the time I withdrew, most of my time and energy was devoted to working for the better examining of HSC English, to giving talks to teachers, revising and refining the examining procedures. Suddenly? Nothing. That energy, I guess, has overflowed into the formation of the local Chapter. It was probably extraordinary: an academic philosopher, who had never even taught the subject, as chief examiner in the subject!

**Without reading, and in most cases, without ever having read, a single script!

to feedback
to the marks
about his
performance,

Over those years, I became aware of some of the social forces that operate in educational institutions such as that of the public examination, and again found it fascinating to see how the nature of that with which people were concerned, was subject to the constraints of their means of representation of what they dealt with. And, not the least, fifty-year old scales fell from my eyes. Painful lessons that had taken a long time to learn. I should have known better than to have supposed that a disinterested concern for the quality of the teaching of English would be the principal motivator of the majority of those I worked with during those years. I had ideas of writing about the whole complex at length, and spent some time last year on a possible study of our Victorian system. The nature of exams has little been studied by philosophers, and the nature of educational assessment hardly at all, other than by educational statisticians vainly trying to fit to the numbers that emerge from the process of marking, the tacit theories of measurement developed for the quantitative sciences. There the numerical magnitudes are correlated by our scales of measurement to genuine quantitative magnitudes, but there is no such thing in the case of the marks placed on an essay. They are convenient indices of the appraisal they record, and it is usually meaningless to subject them to the kinds of numerical manipulations that are appropriate in the quantitative sciences. The sad thing about all of this was that I had managed to bring a minority of English teachers here, around to seeing the successor to the old 'clear thinking' studies, as a means of making students aware of the forces that mould judgement, and in so doing, put them in a position to critically appraise the operation and use of those forces on any occasion, and to determine whether the use of a means of influencing judgement was warranted on that occasion. Hence (and this many teachers found utterly baffling) the discipline was a moral one. When is it legitimate to influence the beliefs of another person, what means are legitimate (morally permissible), and on what occasion, and why. That odd-ball book may be completed some day - An English Examination, or An Examination of English. The most interesting thing, apart from all this stuff, was that I became aware of the incredible limitations of the powers of current formalisms and tacit theories (philosophical theories) of the nature of inference. Perhaps in 1,000 years we may be clearer about the nature of the inferences we make from the content of a novel to the conduct of our lives, and of the principles of appraisal involved in the criticism of those inferences. You people who are expert in the discipline can do this, and many extraordinarily well. The contemporary logician is light years away from being able to represent the structure of such inferences. Few, in their arrogance, are aware of any such limitations. Contemporary formalisms are not yet competent or fitted for such a task.

So there you are. A delightful intellectual, technological toy for the biggies, a model of the normally intractable world over which we have inner control, and as representation of the world, as representer of the world, identified with it, a tacit magic substitute surrogate, finite, rational universe under our control, better than the real one which it often seems to be, which so often fails to live up to our fantasies. That, I think, is why. It's a very hard question to answer, but it is one that needs to be asked.

The above is where I had reached when your letter of 22nd October turned up to jog my conscience and leave marking assessment essays (it is the end of our academic year in the Southern Hemisphere) and editing and writing stuff for PPCTN#3, to complete a tough task. I hope this isn't too much, and too late?

No matter if it is - you will see from these last few pages that your's was a shrewd guess (illustrating the point about inferential processes very nicely): I do, perhaps, yearn for rational behaviour. But it's not to be found in my hand - for the essence of the rational is the reappraisal, and that, so far, has to be done by us, at least for the present. Rational insofar as that domain is finite, discrete (in both senses - or all three), and totally, according to the principles of its design and our extant physical theories, explicable in its behaviour in every respect. The only uncertainties there consist in whether we can find a way of structuring our problems such that their solution, or approximate solution, can be represented by a sequence of-machine describing operations, and an interpretation of final machine states.

Thanks for the news of your frustration by Othello, and for your son's details of his strategy. I will, hoping you will have no objection, quote both of you. #3 is very near completion by now. It should be printed by the new process early next week. My congratulations to your son - very impressive.

Valentin, you will be no doubt surprised to learn, is about 22, a current graduate student from (I think) the Madrid Polytechnique, or the equivalent, is I think, employed now by Madrid HP. He had found the method of getting the subroutine return stack of the HP-67 onto a card, and used NNN's, without quite knowing what they were, late last year, when he saw a copy of the introduction to my NNN Bibliography, and wrote to me seething with curiosity. I sent him John Martellaro's excellent short 'how to' article, and a PPC enrolment form. You know the results! He is utterly incredible. Obviously, in his areas, the equal of that W.C.W. feller. Wait till you see the stuff of his in the latest TN.

Again, thanks for the kind things you say about TN. There is, in doing those things, an astonishing amount of sheer hard work, and very little reaction. Good to have - makes it All Worth While. I looked at the mangled quotation from that letter of yours you mentioned. On second reading it came through, when I realised that I had read it two years back and realised what good advice it was. It is Richard on the run, I fear, with his often charming spelling, and frequently awkward syntax.

So! There it is. One would be right not to see this phenomenon in a wider context were it not the case that the computer is going to influence the way we think, and the institutions of our society in quite profound ways, and to come back to the PPC Club level, were there only a few of us, and the passions less passionate, more hobby-like.

There is one thing that should be added to all of the above abstractions: much of the real satisfaction must also be seen as coming from the rewarding contacts with others - even as far away as Baltimore is from Melbourne...

Sorry that this is such a monster. When I was about 14 (Rob. (?) will understand, even if you have forgotten), I came home with a school report on which my English master and form master had written "Writes and talks too much." It took a great deal of solid talking to convince my father, himself a teacher, that all was well. As Kant said of his first Critique: it would have been much shorter had I spent more time over it, but this is/has been written directly on the typewriter with no revision, other than to remove my worst mistakes and excesses. I hope its of some value to you.

By the way: Feyerabend argues that if actual effective science is to be dubbed irrational, we need another word to describe the actual, most effective processes which he tries to distinguish in his book.

Yr. John (6th Nov. '80)