

Doctoral thesis

Owen Kelly

Ambient Learning and Self Authorship

human minds, cultural tools, immersive worlds

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OWEN
KELLY

AMBIENT LEARNING
AND
SELF AUTHORSHIP

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A question worth asking is based in experience & driven by necessity.
That is, a good question is essentially practical.

Robert Fripp,
January 28, 2011

For Aurora Liberty Sippola
wherever you are

August 30, 2001 – January 12, 2014

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INTRODUCTION

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Research Topic

The empirical research that led to the writing of this dissertation began in 2002, when a series of decisions at Arcada, the institution where I teach, led the multimedia team there to plan what, at the outset, we called a "virtual world". We launched the first version of this in 2003, at a time when Second Life had only just opened its doors. We ran the "world" initially as an experimental project with no defined long term goals; in the belief that we would develop specific maps as we became more familiar with the territory.

The focus of the project narrowed as it progressed, and as we began to make sense of our initial discoveries. The empirical research concluded in 2009. I then began to draw the various threads of the project together in order to document, and to better understand, all we had learned. This developed into a further phase of theoretical reading and research which, in turn, led to the development of ideas for further projects aimed at proving a set of hypotheses arising from the work to date.

This dissertation thus documents a decade of research into possible pedagogical uses for so-called "virtual worlds". The initial activity, the world-building, formed a creative endeavour in its own right, albeit one that laid foundations for empirical research and then concluded with desk research into philosophy, psychology and consciousness studies. The research itself began as open-ended experimentation, and then developed through the creation of tentative hypotheses that suggested unexpected directions for theoretical study. The studies have thus moved across disciplines and this, in turn, has raised issues concerning the nature of the final dissertation.

The nature of doctoral dissertations varies greatly according to subject, and the requirements to fulfil them vary accordingly. Robert Paul Woolf has stated that in

Microbiology or Anthropology or History, a doctoral dissertation is a research report, which is to say a report, in stylized form, of research that the candidate has been carrying out under the guidance of a Director. In Philosophy, a dissertation is The Defense of a Thesis.

(Wolff, 2010: online)

The interdisciplinary aspects of this work, and the fact that I seek to abduce hypotheses from theoretical reflections occasioned by an analysis of empirical research, mean that my dissertation falls somewhere outside the two options posited by Woolf. I shall therefore outline here a topic, a research question, and a thesis that I wish to defend.

Dissertation Topic

The topic of the dissertation concerns the underlying nature of open-ended multi-user worlds and their possible uses. The dissertation documents one project from creative and pedagogical perspectives, offers a theoretical framework for the analysis of the meanings of our activities, and proposes a set of hypotheses with practical outcomes for further testing.

Research Question

My research question therefore asks: what human faculties do immersive worlds extend; what might they tell us about ourselves; and how might this affect our concepts and practices of learning?

The Thesis

I can state the thesis that I wish to defend in one sentence (Wolff, 2010), as follows.

Ambiguity and complexity form an increasing part of our lives, and immersive worlds can offer a powerful tool for training ourselves to deal with these while optimising our abilities to achieve "authentic happiness"

(Seligman, 2004).

About the Author

I grew up in Birkenhead on Merseyside in England, where I participated in the Merseyside poetry scene as a published teenage poet. I attended the University of Keele.

As an undergraduate I achieved a degree in English literature and sociology, with history and computer science as subsidiary subjects. I subsequently worked as a community artist in Brixton, south London, for fifteen years.

The computer science I studied at the University of Keele involved programming simple FORTRAN routines which technicians turned into punched cards and then fed into a mainframe computer. The results of calculations that my twelve year old daughter could have performed on her smart phone came back to us three weeks later on long sheets of paper which we spent a morning analysing for programming errors.

My experience of autonomous personal computing began in 1981 when I purchased a Spectrum 48K in order to learn to programme in Basic. In 1986 I first used Adobe PageMaker on an Apple Macintosh with 1 megabyte of RAM.

These decisions eventually led me into a career as a software trainer specialising in desktop publishing and HyperCard, and later as a programmer and designer for cd-roms. I published a personal and group information manager called Workers Control as a set of HyperCard Stacks, and I developed a prize-winning poetry generator called Slim Vol. I also created, and subsequently led, a one year training course in multimedia for Lambeth College.

I mention this history here because this dissertation represents a significant milestone on a lengthy journey, and some information about the route that I have taken might help to make sense of both my choice of research topic and the particular analytical approaches that I shall bring to bear on it.

Publications

I wrote a book called *Community, Art and the State* (Kelly, 1984), which summarised my view of the practice and philosophy of radical community artists in Britain in the 1980s. Thirty years later this book remains required reading on a number of degree courses in England and Australia.

I co-wrote *Culture and Democracy* (Kelly, Lock, Merkel, 1986), the manifesto for an international conference entitled Another Standard, held in Sheffield in October, 1986.

In 1995 The Calouste Gulbenkian Foundation commissioned me to research and document the growing use of digital technology by artists. This resulted in a book called *Digital Creativity* (Kelly, 1996), which the Gulbenkian Foundation continues to make available online.

I have created work online since 1996, on a web site which I have used for creative projects, documentation and experiment. Originally this could be found at golgonooza.org. Since 2006 my site has lived at owenkelly.net, where you can currently find a range of essays and notes.

In recent years I have contributed chapters to several books including *Mashup Cultures* (Sonvilla-Weiss, ed, 2010), *Serious Educational Games Design* (Annetta & Bronack, eds, 2011), and *Transforming Virtual World Learning* (Hinrichs & Wankel, eds, 2011).

About Arcada

In 1996, in Helsinki, Finland, the Swedish Institute of Health Care Education (Sjukis), the Swedish Institute of Commercial Education (Lilla Hanken), the Institute of Technology (Verket) and the Folkhälsan Institute of Social Education merged to create Arcada, a university of applied science.

In 1998 the Finnish Ministry of Education and Culture mandated Arcada to "promote Finnish-Swedish language and culture, taking into particular consideration the educational needs of young Finns of Swedish origin".

Originating from three different institutions (business administration, technology and health care), situated at different locations in Helsinki and Espoo, Arcada moved into its own building in Arabianranta, Helsinki, in 2004 and so created the foundation for one campus.

In 2013, Arcada had 190 members of staff and 2,700 students. It offered 16 Bachelor's degree programmes, three in English, as well as 6 Master's degree programmes, with two taught in English.

Academic Ethos

From its beginning Arcada has had an academic ethos, albeit with a vocationally-directed bias.

Because of its size, teaching in Arcada usually takes place in groups that seem small even by European standards. The four-year BA course in online media, for example, accepts 12 students each year, while the Film & Television School, within which it belongs, accepts a total of 38 students.

This unusually low teacher/student ratio has a positive effect on the creation of course plans and lesson plans; the flexibility within courses; and the forms of assessment used. Many classes contain fifteen or less students, and thus class goals can often be supplemented, and in some cases completely replaced, by individual learning plans. Assessment takes place primarily within project work, and may take the form of self-assessment and discussion during and after courses.

I should note from the outset that although students may, from time to time, fill in formal questionnaires, the low numbers in each group mean that statistical analysis of the results of these exercises necessarily has a limited scientific value.

Constructivist Approach

From its inception Arcada has adopted an active-learning, social constructivist approach to education, which recognizes each student as a unique individual, understands that learning occurs socially, and believes that students learn best through discovery. These principles held especially true within the Media Department (subsequently renamed the Film & Television School), where first year students begin working on practical projects within a few weeks of enrolling.

Staff have devised methods of instruction to complement ongoing practical work, in ways that will challenge students by proceeding ahead of their development and alongside their current project; in line with the suggestions of constructivist theorists that learning occurs within a zone of proximal development, defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under ... guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p86)

In practical terms the views of learning within the department resemble those of John Holt, who declared that he never saw himself as practising the cello, only as playing it badly in the hope of later playing it better (Holt, 1978). Students participate in successive projects with the intention that each one will develop their skills further until, by graduation they can think and act at a professional level. More formally, the department draws upon the revised Bloom taxonomy, as amended and updated by Anderson & Krathwohl, where the original noun-based formulation becomes a matrix of verbs, with a consequent move from learning objects to learning processes (Anderson & Krathwohl, 2001).

At the time when we first began to work on the Marinetta Ombro project Tore Ståhl, a colleague at Arcada, had recently undertaken research into the relevance of the Bloom taxonomy to virtual learning environments. He concluded (Ståhl, 2004) that the optimal use of virtual learning environments would "require a dynamic and not necessarily a linear use of different spaces during different phases of the educational process, a strategy already used e.g. within problem-based learning".

Later, in developing the Marinetta Ombro project, the online media team moved to

a position closer to the framework that Andrew Churches would propose (Churches, 2007). In this, Churches sought to find a place within the work of Bloom and Anderson for the new (and typically digital) activities such as 'bookmarking' and 'podcasting' that have come to constitute important means within the taxonomy of learning processes.

Digital Multimedia

The Digital Multimedia course formed one of the five strands of the Media Department and had an intake of twelve students per year. In 2002 it had two full-time staff members, Owen Kelly and Camilla Lindeberg, as well as a number of part-time and sessional teachers.

In 2006 Camilla Lindeberg left to join Miltton, a start-up in Helsinki that has since grown considerably and achieved international success. Jutta Törnqvist replaced her and helped steer the final years of the project described here.

When I talk about "we" in the sections that follow I therefore refer to Camilla Lindeberg and me for events between 2002 and 2006, and Jutta Törnqvist and me for events in the years after Camie left.

Methodology

The *Marinetta Ombro* project began through a process of open-ended exploration. Only through this early exploration did research questions arise, and only through further exploration did these research questions become more specific and focused. The initial exploration formed a ground upon which a series of creative works grew. The project did not begin as research and never became the kind of research project aimed solely or primarily at generating results. Nonetheless results arrived, and as the project progressed we became clear that we needed to codify and formalise these results in order to further the creative elements of the project.

This section describes in outline the methodological strategies that we adopted. It contains three sections, which approximate each of the main stages of the project. Each stage of the overall work used different methodological tools which, taken together, should allow me to mount an argument that draws together the empirical and theoretical aspects of the research, and provides convincing answers to my research question, while successfully defending the thesis put forward. I have included a fuller explanation of these methodological tools and techniques below.

I should add that I do not intend to produce a theory of either ambient learning or memetic self-reflection here, but rather to put forward a set of hypotheses that, taken together, lay out suggestive evidence for the theoretical necessity and practical possibilities of such theories, and a practical set of tools to pursue the search for evidence to support them.

Empirical Observations

We began the initial empirical project as an artistic and educational work within which we had no specific long term goals but, instead, assumed that we would find these as we moved into new territory. We used a bottom-up approach that I had experienced directly when working with Peter Small as part of an online learning cafe that he created to enable him to write a book (Small, 1999). In this process, goals arose from the process of generating and experimenting with ideas, and could change as the need arose. The

nature of the project meant that our work constituted first person research and so we made much use of work by the social psychologist Kenneth Gergen, who has suggested a methodology for framing first person research in a scientifically respectable manner (Gergen, 1981 & 1993).

Arcada does not have a large enough student body to enable us to conduct meaningful quantitative research, and we therefore relied on qualitative methods. We began to view our activities as creative as much as analytical and the results as art works in various forms. As the empirical projects progressed we therefore began to see much of our research as primarily literary-critical and hermeneutical.

We collected and analysed the research data that we gathered from the experiments and practical projects we carried out using a standard range of approved action-research methods (Zuber-Skerrit, 1992).

Theoretical Tools

The second section looks at our methodological approach to the next phase of the overall project, which began when we stepped back from the creative work in order to undertake more formal research. We needed a set of tools that would let us formalise our observations and then build upon them.

We viewed our process as *abductive*, in the sense that the American logician Charles Sanders Peirce used this term. "Peirce's construction of abduction essentially describes a process in which the subject is confronted with an observed fact which needs explaining and which seems important. In order to explain the observed fact, he/she needs to come up with a "known law or rule of nature or other general truth" which will both explain the fact retroactively and hopefully reveal its relevance as well. Abduction is the step in between a fact and its origin; the instinctive, perceptual jump which allows the subject to guess an origin which can then be tested out to prove or disprove the hypothesis. Abduction is a theory developed to explain a pre-existing fact" (Harrowitz, in Eco & Sebeok, 1983, p182) Since our research did not permit us to pursue quantitative methods or to generate our own statistics we relied instead upon Peirce's suggestions concerning diagramming and diagrammatic thinking.

We defined our approach in relation to what the American philosopher Daniel Dennett has labelled *heterophenomenology*. He regards this as an application of the *intentional stance*, in which "first you decide to treat the object whose behavior is to be predicted as a rational agent; then you figure out what beliefs that agent ought to have, given its place in the world and its purpose. Then you figure out what desires it ought to have, on the same considerations, and finally you predict that this rational agent will act to further its goals in the light of its beliefs. A little practical reasoning from the chosen set of beliefs and desires will in most instances yield a decision about what the agent ought to do; that is what you predict the agent will do" (Dennett, 1987, p17). Because we regarded our work as both artistic research and cultural research we moved between autophenomenology, in which we found facts from which to abduce, and heterophenomenology in which we observed other subjects in order to make valid observations. Dennett describes the area within which we moved as follows:

Lone-wolf autophenomenology, in which the subject and experimenter are one and the same person, is a foul, not because you can't do it, but

because it isn't science until you turn your self-administered pilot studies into heterophenomenological experiments. It has always been good practice for scientists to put themselves in their own experimental apparatus as informal subjects, to confirm their hunches about what it feels like, and to check for any overlooked or underestimated features of the circumstances that could interfere with the interpretations of their experiments. But scientists have always recognized the need to confirm the insights they have gained from introspection by conducting properly controlled experiments with naive subjects. As long as this obligation is met, whatever insights one may garner from 'first-person' investigations fall happily into place in 'third-person' heterophenomenology. Purported discoveries that cannot meet this obligation may inspire, guide, motivate, illuminate one's scientific theory, but they are not data - the beliefs of subjects about them are the data. Thus if some phenomenologist becomes convinced by her own (first-)personal experience, however encountered, transformed, reflected upon, of the existence of a feature of consciousness in need of explanation and accommodation within her theory, her conviction that this is so is itself a fine datum in need of explanation, by her or by others, but the truth of her conviction must not be presupposed by science.

(Dennett, 2003, p24)

For the reasons that Dennett states I do not believe that our process of research amounted to a scientific enterprise. It remains what I intended when I began: a document of a creative process, framed in such a way as to define an area of interest that other people might wish to follow up.

Documentation

The theoretical reflections led us in surprising directions and we ended up with a model of consciousness that offered explanations of what we had witnessed and a set of practical conclusions from both the initial observations and the subsequent reflections.

In documenting the results in this dissertation, I have used Stephen Toulmin's model of argument to structure my approach. He states that an argument begins when "we make an assertion, and commit ourselves thereby to the claim which any assertion necessarily involves". He further argues that an argument should properly contain not just a set of data and a set of conclusions, but also a warrant, which he defines as "general, hypothetical statements, which can act as bridges, and authorize the sort of step to which our particular argument commits us (Toulmin, 1958, pp97-98)". I have set out my conclusions at the end of the dissertation as a series of numbered paragraphs, and these paragraphs together form both a synopsis of the overall narrative of the thesis and constitute a full version of the claim that I make in the thesis. I elucidate the support or ground for this claim step-by-step in the main chapters of the thesis, with the warrants spelled out explicitly in the *Hypothesis* section in the final chapter.

I have adopted E-Prime as a mode of writing throughout the dissertation in order that the concerns with human agency that arise during the argument emerge as situated observations of mine, as they ought to, rather than arising in the text as apparently external and objective truths.

E-prime, abolishing all forms of the verb "to be," has its roots in the field of general semantics, as presented by Alfred Korzybski in his 1933 book, *Science and Sanity*. Korzybski pointed out the pitfalls associated with, and produced by, two usages of "to be": identity and predication. His student D. David Bourland, Jr., observed that even linguistically sensitive people do not seem able to avoid identity and predication uses of "to be" if they continue to use the verb at all. Bourland pioneered in demonstrating that one can indeed write and speak without using any form of "to be," calling this subset of the English language "E-Prime." Many have urged the use of E-Prime in writing scientific and technical papers. Dr. Kellogg exemplifies a prime exponent of this activity. Dr. Albert Ellis has rewritten five of his books in E-Prime, in collaboration with Dr. Robert H. Moore, to improve their clarity and to reap the epistemological benefits of this language revision. Korzybski felt that all humans should receive training in general semantics from grade school on, as "semantic hygiene" against the most prevalent forms of logical error, emotional distortion, and "demonological thinking." E-Prime provides a straightforward training technique for acquiring such semantic hygiene.

To understand E-Prime, consider the human brain as a computer. (Note that I did not say the brain "is" a computer.) As the Prime Law of Computers tells us, GARBAGE IN, GARBAGE OUT (GIGO, for short). The wrong software guarantees wrong answers. Conversely, finding the right software can "miraculously" solve problems that previously appeared intractable.

It seems likely that the principal software used in the human brain consists of words, metaphors, disguised metaphors, and linguistic structures in general. The Sapir-Whorf-Korzybski Hypothesis, in anthropology, holds that a change in language can alter our perception of the cosmos. A revision of language structure, in particular, can alter the brain as dramatically as a psychedelic. In our metaphor, if we change the software, the computer operates in a new way.

(RA Wilson, in Bourland & Johnston, 1991, p23)

The use of the passive voice in conjunction with the verb "to be" can have a particularly pernicious effect, akin to the sleight of hand used by stage magicians. For all but the most alert reader a sentence beginning "For many years it has been accepted that..." can achieve a spurious authority just through its mode of construction. It does not impart a clearly argued meaning so much as nudge the reader down one particular rhetorical path while deflecting their attention.

I have an additional and related concern which I have attempted to deal with in this text by writing transparently. I am troubled by the shadowy agents that populate much discourse and stand between the reader and the author, pleading on the author's behalf without ever being identified. "Most psychologists would argue..." "It is commonly accepted within the field of biology that..." These kind of sentences imply a certain authority on the part of the author who, the reader must presume, knows enough psychologists to make this assertion, and has a detailed enough grasp of current trends within the field of biology to know what biologists do and do not accept". In this kind of argument the author avoids providing evidence and instead implies an undefined insider-status, which serves to place the reader at a disadvantage when it comes to criticising the author's argument.

I have thus replaced all occurrences of apparently agentless utterances such as "It is believed that..." with phrases containing named agents such as "My uncle and I believe that...", and all phrases such as "John was wrong" which implicitly declare wrongness as an inherent property of John with phrases like "I did not believe John" which marks John's wrongness as a belief of mine. I have also attempted to avoid claiming an authority I may not possess by removing or replacing sweeping generalisations.

In addition, I illustrate several of the arguments in Part 3 with tetrad diagrams in order to map out some of the implications of synthetic and immersive worlds, and in order to create diagrams showing how they can be related to human capacities and human needs. I have borrowed these from the work of Marshall McLuhan. Marshall and Eric McLuhan describe tetrads as "not sequential but simultaneous facets of media effects" (McLuhan & McLuhan, 1988, p127). They constitute an exploratory tool for unpacking the effects of a medium and locating it in a wider media landscape. They argue that

Insofar as the tetrads are means of focusing awareness of hidden or unobserved qualities in our culture and terminology, they act phenomenologically. From Hegel to Heidegger, phenomenologists have engaged in an attempt to get at the hidden properties or hidden effects of language and technology alike. In other words, they have tackled a right-hemisphere problem using left-hemisphere technologies and modes of cognition. With the tetrads the dilemma is resolved.

(McLuhan & McLuhan, 1988, p128)

McLuhan argued that every medium displays four characteristic facets. It enhances some previous ability; it retrieves some older custom or skill; it makes a previous medium obsolete; and, if taken to extremes, it reverses into something else. He intended tetrads to provide a way of schematising these facets, in order to provoke dialogue. "The laws of media in tetrad form belong properly to rhetoric and grammar, not philosophy. Our concern is etymology and exegesis. This is to place the study of technology and artefacts on a humanistic and linguistic basis." (McLuhan & McLuhan, 1988, p128) I use them here in that spirit.

Caveat Lector

This dissertation covers a wide range of topics in the course of the argument that it proposes. In order to focus on the overall thesis, I have made no attempt to cover every topic in exhaustive detail. Where necessary I have tried to point the reader towards more detailed analyses.

Similarly, the history of the empirical research has many complexities that seem to me irrelevant to the thrust of the argument. I have therefore made efforts to simplify these, and to omit them altogether where possible.

In three particular areas, the thesis does not attempt to treat issues in full detail.

Elision of Historical Details

Camilla Lindeberg and I began what we came to see as empirical research in 2002. Jutta Törnqvist and I completed the research in 2009. During this eight year period Arcada went through a number of academic and administrative changes. These continued, and indeed, as I write, Arcada has entered

a further period of development and growth.

In 2002 I taught multimedia in the Media Department. During the research "multimedia" became known as "digital multimedia", "digital media", "online media", and finally "online media and art direction". The content of the course similarly changed, as the media landscape altered, and new phenomena such as mobile devices and social media appeared.

The department also changed identities several times during this period, becoming for a time the School of Film & Television. In January 2014 it changed again to become Kommunikation och Kultur, housed in one of Arcada's five new institutes.

These changes in terminology and administrative relationships have no direct bearing on the arguments that I advance in this dissertation, and I have therefore tried to ignore them. I have chosen to refer to the students as multimedia students even though, in the later years of the project, they officially studied "digital media" and now study "online media". In a similar vein I refer to the degree course as "the multimedia course" and the department as the Media Department.

Additionally, at an early stage of the project, we decided to define our terms. For reasons that I discuss in detail in Chapter 13, we abandoned the term "virtual world" in favour of two other terms: we began to refer to the whole class of such objects as "synthetic worlds", and a specific subset that interested us as "immersive worlds". For the sake of clarity I use those terms everywhere, except for the very beginning of the dissertation, even where I describe events and activities that took place before we had this discussion.

Technical Issues

During the development of the project we faced a number of challenging technical issues. In earlier drafts of the dissertation I went into considerable detail about these. I have now removed these on the grounds that they introduced an unwarranted degree of complexity in several areas that remained peripheral to the main arguments.

We spent almost two years wrestling with software called SCOL (an acronym for Standard Cryonic Online Language). The fact that we failed to get to grips with this led us to discover Second Life, where much of the empirical research took place. The reasons that we failed, in the end, to get to grips with SCOL have no bearing on the outcome of the story, although they would bear telling in a different context. Between SCOL and Second Life we worked hard for a year attempting to adapt 3D Game Studio, an excellent game engine, to our needs. We did not succeed, although we did make some technical discoveries that we later imported into Second Life.

I regard all these aspects of the research as interesting in their own right, while feeling that a discussion of them here would detract from the arguments I wish to advance.

Philosophy & Cultural Analysis

This dissertation makes much use of certain aspects of the work of the nineteenth century American logician Charles Sanders Peirce. It does not, however, provide either an exhaustive analysis or a detailed commentary on his philosophy.

Peirce himself talks about the need to adopt a common-sense approach, an approach that adopts a fallibilist stance. I have tried to treat his writings in

this way here. I have tried to use them as practical tools to unlock certain puzzles that arose while thinking about the research. I have made little or no attempt to locate his arguments within a broader history of philosophy.

I have adopted a similar approach with the work of the philosopher Daniel Dennett, and with the media ecologists Marshall McLuhan and Neil Postman. In McLuhan's own term I borrow ideas from them to use as "probes". I have understood from the outset, for example, that many people regard Dennett's views concerning consciousness as controversial, or else (like Jerry Fodor) simply dismiss them. I do not attempt here to justify my use of them by demonstrating why Dennett's arguments stand where Fodor's arguments fall. That would produce a manuscript of inordinate length. Instead, at each important stage in the overall argument, I point to the original sources in the hope that the interested reader will seek them out and make up her own mind.

I likewise ignore the long-standing controversies around the philosophical objections to the theory of memetics, choosing instead to use it as a tool for exploring certain ideas. I understand the disagreements between sociobiologists and those pursuing meme theory, and between both these groups and others who claim that the concept of evolution cannot have any relevance at all to the study of the history of culture, but do not regard them as having any relevance to the arguments presented here, in the context in which I present them. For those interested in understanding these controversies I recommend the detailed discussion in Chapter Two of *The Electric Meme* (Augner, 2002). You will also find a more partisan description of these arguments scattered throughout *Memetics: memes and the science of cultural evolution* (Tyler, 2011).

Order out of Chaos

Finally, the reader should take notice that the very structure of the dissertation conspires to lie about the research process. I have tried to lay out the material in many different forms and in the end I have opted to lay it out in the form that you read now. I have done this because I wish to advance an argument and all my attempts to capture the creative chaos of the original process while maintaining an intelligible argument failed. In truth, the research process did not follow anything like the tidy path implied here. The practical and theoretical work overlapped and occurred in untidy clumps. The projects that comprise the empirical research themselves overlapped and influenced each other. We never proceeded in the kind of one-step-at-a-time way the narrative that follows might suggest. This dissertation, then, offers a mighty fiction based on a true story, in which the underlying truths remain true, but many of the details line up in service of the narrative rather than where they would stand if viewed in a day-by-day diary.

I make no apologies for this since the dissertation itself stands as an artefact within the narrative of Rosario that it describes, and both point towards the same set of conclusions.

PART I: IMMERSIVE WORLDS

This part of the dissertation describes the empirical research which took place, for the most part, on an island in Second Life.

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CHAPTER 1: BEGINNINGS

(28)

At the beginning of the 2002-2003 academic year at Arcada, Lars Lundsten, the new head of the media department, made a decision that we should move from "working with projects inside courses to working with courses inside projects". He asked for proposals for constructing one or more over-arching projects within each subject in the department, and pointed to one existing project, TV Borgå, as a model that we should investigate.

1.1. TV Borgå

The television course leaders had created TV Borgå by renting an unused local cable channel in a small city fifty kilometres to the East of Helsinki. The station that transmitted on this channel only broadcast for a few hours each week, and only ever showed a maximum of thirty minutes of new programming per week, accompanied by curated repeats. However, even though the channel had very few viewers, it shaped almost all aspects of the students' studies. Every activity that they undertook served a dual function as a learning exercise and as a contribution towards the broadcast schedule. Each deadline for an assignment or project became an inflexible commitment to fill a certain time-slot on a certain date, and much of the course thus acted as a kind of virtual work experience.

Staff encouraged students in their belief that the small programmes that they made for this tiny, little-known channel would ensure that one day they would make big programs for a large, publicly acknowledged channel. From the perspective of social constructivism, the design and complexity of the learning environment precisely reflected "the complexity of the environment that the learner should

be able to function in at the end of learning" (Knowles et al, 2005). This channel acted as an over-arching project-based framework for the film and television students. It provided practical technical challenges and guided their thinking about television. In analysing how it functioned we came to believe that we too should create a project that people would recognise outside the school, and that we could use as the basis of both practical and theoretical classes.

1.2. The Initial Challenge

According to the initial project documentation (Kelly, 2010) the specifications we agreed for the multimedia project required it to "act as a laboratory within which students could test their ideas; improve their planning, design and programming skills; and then watch as their experiments had real and lasting effects". In addition to work in the classroom, we knew that our students needed and expected work experience as an important part of their course. In 2002 the first internet bubble had burst, and the Finnish multimedia industry had imploded with the result that, for several years, students would have much less opportunities to work as interns. We therefore felt that we would have to prepare to find ways of simulating some of that experience in-house within the planned project.

In order to relate closely to the main threads of the course, the umbrella project needed to

1. allow students to maintain a complete and complex web presence with a real user base;
2. force them to create innovative web applications to service the users and increase traffic to the site;
3. compel them to address theoretical issues concerning usability, user interface design and the possibilities of cross media integration.

The project also had to enable the students to work within the kinds of situations, and under the kinds of constraints, that they were likely to encounter upon graduating. It had to act as a training tool for both the skills they would need after graduation and the kind of working habits that they would need to develop.

We began by drawing up a set of criteria to help us conceptualise and steer the project. In doing so we decided to adopt a completely open-ended approach, bolstered by Albert Einstein's assertion (quoted in Mitchell & Jolley, 2010, p84), that "if we knew what it was we were doing it would not be called research, would it?"

1.3. The Criteria

After graduation, our students usually entered the media industries in Finland and sometimes Sweden. They went on to create advertising, to manage brands, and to design book jackets, cd-roms, interactive videos, posters, web sites, and more. We needed a framework that could embrace all these possibilities and challenge students to step out of themselves.

We decided that we needed an environment that acted as much more than a private classroom; by which we meant that the environment had to have a

use value of some kind to people other than the learners and instructors. The programmes shown on TV Borgå received occasional feedback from viewers, both positive and negative. This happened often enough to keep the students aware that they had an audience who chose, for their own unknowable reasons, to watch what the students produced. We recognised that this effect had formed an important part of TV Borgå's success.

We decided that, whatever form the project took, it should:

1. create an environment that we could use for both education and entertainment;
2. provide a framework that we could use to develop distance learning initiatives;
3. offer opportunities to work with the Departments of Media Technology and Computing, and other departments in Arcada, to create new and innovative kinds of modules and courses;
4. lay the foundations for introducing students to services such as online banking, shopping, etc., both as developers and consumers;
5. facilitate partnerships with other organizations to further develop the project; to train students; and to provide employment opportunities for graduates.

1.4. *The Initial Process*

We set an initial three year period of exploration with the intention of conducting an assessment at the end of it. We agreed that during this period we would, as far as possible, proceed by a series of small, incremental experiments. We would pose questions and then observe what resulted from students' attempts to answer them. We would allow the outcomes of one experiment to influence or determine the next question.

Our initial plans for constructing such experiments consisted of aligning the many practical projects within existing classes in such a way that we could aggregate these projects into a larger whole. The constructivist-based instruction at the heart of Arcada's programs meant that almost all classes would conclude with a practical project designed to demonstrate the students' mastery of the course learning outcomes. We hoped to devise projects that would serve to demonstrate these learning outcomes while at the same time moving one aspect or another of the emerging "virtual world" forward.

I had had previous personal experience of a bottom-up design methodology, where the final product emerged from a series of explorations that developed organically. I had participated in a series of virtual cafés that Peter Small had created as part of the process of writing *Lingo Sorcery* (Small, 1998). These had begun with almost no predefined agenda and yet, through a careful designed process, had become powerful forums that decided topics to explore and ways to explore them - and produced the results that Peter needed to demonstrate his theory. I had seen him use these same bottom-up techniques later to identify an interest group with a genuine unmet need, and then, using the same open-ended processes, produce both a software to meet that need and a book documenting the whole procedure (Small, 2002).

We began the process by devising the first research question which we addressed to both staff and students. This question asked what sort of framework project we should build.

Faced with the task of devising a framework to unite the various elements of the course we agreed that we would make the construction of the framework a part of the project itself. We therefore began by working out a strategy for bringing the framework to life. We decided that we would

1. involve the students as soon as possible in the process;
2. keep the students involved at every stage; and
3. inform other staff members, and other departments, of the initiative with a view to encouraging them to join in the process.

We sent out an email that included a brief synopsis of the aims and purposes of the intended project, and concluded with a specific research question to which we asked people to respond. We invited people to send us short free-form submissions suggesting the form such a project could take. We asked them to include an outline of their idea, an explanation of how they thought the idea would work; why they felt that people would find it interesting (both inside and outside Arcada); and how it would fulfil the criteria that we had set out.

2.1. Research Question

In order to ensure that people responded in a ways that we could later compare, and to ensure that people addressed the topic we needed to address, rather than a superficially similar topic that they wished to tell us about, we wrote a short paragraph that stood as our initial research question.

TVBorgå ties most elements of the film and television courses together, while pro-

viding students with a simulated work environment. Given the nature of the current curriculum, and the existing demands on staff and students' time, what kind of activity, object or project might we create that would provide a similar, equally relevant experience for the students studying on the digital multimedia course?

2.2. Description of Activity

We received over twenty suggestions outlining the form such a project might take. These ranged from the very sketchy to the very detailed. The suggestions fell into five broad categories:

1. A website

Several people suggested that we build a web site of one kind or another. One suggestion involved the creation and maintenance of a web site for Arcada's students. Another suggested that we create a history site for Arcada where staff and students had their own profiles which remained once they had left or graduated, thus building a living history of the institution as it grew.

2. A wiki

A second category involved the creation of a wiki. *The Wiki Way: Quick Collaboration on the Web* (Leuf & Cunningham, 2001) had recently been published. The ideas in it had fuelled considerable discussion, and some students lobbied for us to adopt its principles and develop our own version.

3. An online game

Several students suggested that we should make a large online game that we could run commercially.

4. Digital publishing

The digital multimedia students had produced a number of cd-roms for external clients, and some suggested that we should form a publishing imprint, create a publishing schedule, and try to become a leading player in the Nordic "edutainment" market.

5. A "virtual world"

The final category of suggestions concerned "virtual worlds", which had begun to form a subject of discussion at this period. A number of early worlds had been launched on the internet, and had garnered a small amount of press interest. In addition the cult novel *Snowcrash* (Stephenson, 1992) had become popular among a sizeable number of students.

Three students pointed to the sudden availability of cd-roms containing small versions of such worlds at retailers in Helsinki, to indicate that such an idea would fit in with developments elsewhere.

2.3. Observations

We took all of the responses seriously, and the process of sifting through them helped us home in on some essential aspects that would prove important for the long-term development of the project. The ideas presented

ranged from the too-small to the too-big but only through examining each idea in detail could we begin to establish what scale a project of the right size might have.

We grouped the submissions and went through each category, itemising the advantages as presented and adding additional elements that occurred to us. We then went through and itemised all the potential disadvantages of each suggestion. In the end we agreed on a course of action.

1. A website

We rejected this because we felt that maintaining it would too easily become a chore, and because it would all too easily become just another site on the web, and not necessarily one that students would choose to visit.

2. A wiki

We rejected this because we did not feel that we would find a topic that we could elaborate indefinitely, while keeping it useful and interesting to the students, and because other staff members expressed misgivings about the possibility that we would lose control of the content and put Arcada in the position of becoming the publisher of material that it could neither endorse nor even countenance.

(In passing, I will acknowledge that the subsequent, rapid and unprecedented development of Wikipedia from a good idea into a global phenomenon suggests that this idea might have provided the basis for a project at least as good as the one we finally developed. My concern remains, however, that such a project would either have failed to attract enough interest and gone into an endless half-life, or succeeded and overwhelmed us.)

3. An online game

While this would certainly have met most of the criteria we had set for ourselves, we encountered an unexpected issue when we canvassed the idea: games proved a very divisive subject. Some students saw themselves as gamers while others took pride in the fact that they had never "wasted their time" playing computer games. One student said, "I am at Arcada to learn a profession, not to play". Another claimed that "my younger brother and his friends play computer games. I don't have time for that kind of thing anymore".

We therefore put this suggestion aside on the grounds that its divisiveness would prove an insuperable obstacle. TV Borgå united the film and television students because they saw themselves as working professionally in the television industry. Only some of our students saw the games industry as a desirable career path.

4. Digital publishing

We rejected this option precisely because students had already produced cd-roms for clients - and we had seen the problems involved at each stage of the process. Authors had often rejected all advice, made impossible or contradictory demands, and then later insisted on radical changes to the finished work when they finally saw what their demands had resulted in. The students involved had finished each project feeling more like indentured servants than designers who had enhanced their skills and enlarged their portfolios.

We felt that this option would, in the medium and long terms, serve to lower group morale, unless we had the resources to create and publish multimedia on our own terms. We did not believe that we had either the time or the budget for this.

5. An online world

We knew less about this suggestion than any of the others. Following the students' suggestion, we purchased several of the small online *SCOLWorlds* kits that appeared at this time in shops in Helsinki, and experimented with them. We showed several groups of students, in particular those who had shown negative attitudes towards gaming. None of them regarded what they saw as a "computer game", although not all of them expressed any great enthusiasm for what they saw. We also looked online for other examples of such worlds, finding *ActiveWorlds*, which seemed both interesting and successful; and had apparently been in existence since version 1 launched in June 1995.

At the end of this process of deliberation we decided that we needed to think more deeply about the idea of creating an online world. We took our original criteria as a starting point, and then added in factors that we had agreed as important during the subsequent exploration and research.

We distilled these into four clear long-term goals. We decided that, in order to provide the same kind of stimuli as TV Borgå, a unifying framework based around an online world must offer:

1. a new kind of environment for self-directed learning

Almost all the online environments that we have seen suffer from the fact that they are designed for one single purpose. Some are designed for distance learning; others are designed for entertainment such as role-playing games. The real world does not work like that. People walk the same streets and sit on the same train for very different reasons.

Our intention is to create such a multi-purposed world: a world in which distance learning is one of the many possible activities that takeplace. We believe that this will provide a much richer and more appealing environment that allows for spontaneous interaction between the inhabitants.

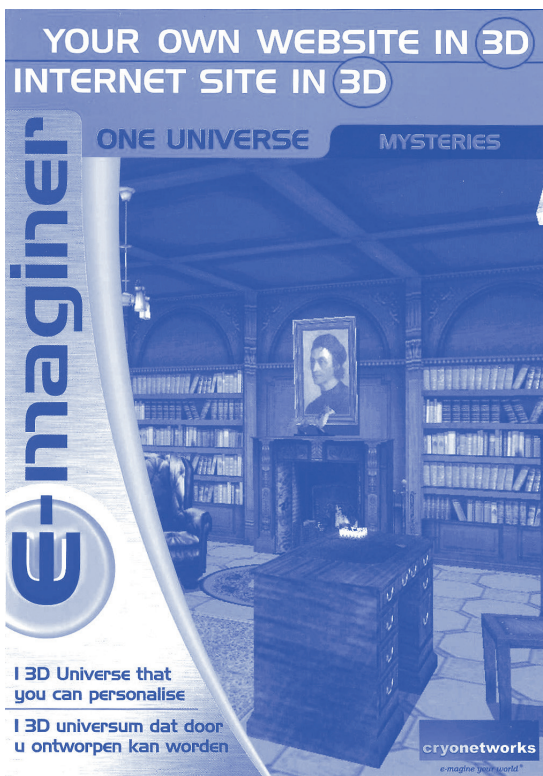
The learning areas in the world should have facilities for streaming live lectures, and for replaying pre-recorded material. The lectures should stream into lecture theatres within which those attending can chat to each other and the lecturer.

The interface should have a panel that allows the display of web-pages or Flash movies which will allow lecturers to provide materials and demonstrations while they stream their lecture.

Normally users will represent themselves on the island by using a 3D avatar. However, smaller groups should have the ability to hold fully interactive tutorials in private rooms where everybody can use a web-cam to communicate directly with everyone else.

2. a laboratory for cultural studies

If the environment that we create becomes rich enough then the uses that people put it to will prove unpredictable. Learning how people use the environment and what people want from it will provide students with valuable experience in the fields of monitoring and marketing.



One of the boxed SCOL worlds sold in supermarkets in Helsinki in 2002.

Within the environment itself we should provide opportunities to undertake marketing assignments and then monitor the results. For example we might create, or encourage others to create, a number of rival brands within the world, with the express intention of allowing to students to gain experience in developing brand strategies, including package design and advertising material.

The use, and public awareness, of the project should provide the basis for many kinds of thesis work. If we believe or accept that ideas get transmitted as memes across the internet then perceptions of the project might become the subject of fruitful scrutiny, for example.

3. a test-bed for application development

We will design the project so that it becomes as open-ended and flexible as possible in all aspects, including the database structure for the user accounts that uses an XML schema designed to facilitate expansion.

The initial applications planned include a radio station streaming to subscribers as long as they are logged in to the world; an in-world messaging system; buddy lists; an island stock exchange that allows users to buy and sell shares in the businesses on the island; and a number of job-themed games that enable residents to earn Rosarian lira.

4. a framework for in-house apprenticeships

Once we launch the world it will act as an external client. A small government consisting of relevant staff members, and student representatives, will create job briefs that mimic exactly the kinds of briefs students will be likely to get upon graduation.

Students accepting briefs will receive credits in the form of work experience weeks as they would if they carried out work experience at a commercial company. We will expect them to carry out the briefs in the same way too. They will work on their own initiative, seeking help and tuition as they feel they need it.

(Kelly, 2010)

Finally we held a series of informal presentations in which we presented the four goals before demonstrating one of the small worlds we had purchased. Everyone present offered positive reactions to the idea of creating an exploratory world, although some expressed reservations about the practicalities.

2.4. Outcomes

The responses to the demonstration and road-map encouraged us to make a definite choice.

We began by approaching the Finnish distributor of SCOL Worlds. Their enthusiasm about the possibility that we would involve ourselves with SCOL, and their willingness to offer us assistance with the technical aspects of world-building, led us to make a final decision. We decided to create an online "virtual world". That choice determined the nature of the framework, and thus the nature of the subsequent research.

We explained our ideas for the online world project to staff and students. We broached the idea of attempting to create a coherence and predictability for the world in order that it might serve as a pedagogical framework within which we could house projects.

We put out a call for suggestions for starting points. We received approximately twenty submissions which almost all fell into one of three categories. We rejected all of these, either because they failed to meet the aims we had set out, or because they contained important pedagogical flaws. Finally we took one of the least-formed alternatives and spent a long time with several student groups completely reworking it.

3.1. Research Question

We have decided that we will create an online "virtual world" as our umbrella project. We believe that this world needs to have an internal logic and a recognisable consistency, in order for us to use it for learning purposes.

What sort of world shall we build, and how will this world meet our aims? What role (or roles) will the users have within the world?

3.2. About Synthetic Worlds

We addressed these questions primarily to the digital multimedia students whose interests lay in the areas of conceptual and graphic design. We intended to make them focus on the context within which that design would take place.

The first question, and the subsequent research that it spawned, kept the multimedia students occupied for a full academic year. The year began with discussions about definitions. Before we could discuss what sort of online world we wished to build we needed to decide precisely what we meant by the term "virtual world".

Everybody realized quite rapidly that this term had many different (and sometimes contradictory) interpretations. We felt, however, that we could usefully pull the phrase apart, examine it, and then put it back together again. Richard Bartle, the originator of the first MUD, had done just that. He defined the terms as follows:

virtual: that which isn't, having the form or effect of that which is.

world: in this context, a world is an environment that its inhabitants regard as being self-contained. It doesn't have to mean an entire planet: It's used in the same sense as 'the Roman world' or 'the world of high finance'.

(Bartle, 2003)

From this we drew a clear distinction between 'virtual worlds' and 'virtual spaces', and this distinction lay behind many of the later steps taken in the development of the project.

We defined a **virtual space** as an illusion projected onto a computer screen by specialised software. This kind of illusion provides a set of visual cues that enable a user to imagine that they can look into, or actually move around inside, a three dimensional environment. Usually this illusion appears detailed enough to enable the viewer to describe this environment by reference to the real world, and to differentiate one such environment from another.

As late as 2012, companies such as Teleplace or Venuegen still tried to provide this kind of virtual space, and promote their spaces as alternatives to video conferencing. These spaces appear generic in design and isolated from each other. Users can rent an office space, or a lecture theatre, or an arena. The companies have designed each space to appear realistic enough not to cause users any distraction. Users can interact in the space, access previously uploaded media and, in a subdivided space, move from one virtual area to another. Users cannot usually leave the building, though, because the virtual space has no 'outside' and does not form a part of anything larger than itself. By design, the space does not lend itself to exploration and chance occurrence, but rather it exists to facilitate a pre-made and purposeful interaction between known groups of people with a shared agenda.

We defined a **virtual world**, on the other hand, as analogous to something like 'the Roman world' or 'the world of high finance', since it consists of much more than its geometry. The 'world of fashion', for example, exists as more than just a collection of clothes. The 'world' evoked here includes interlocking sets of aspirations and attitudes; a wide range of actors from designers to models to journalists; as well as calendar events and the various venues at which these events take place. Later, for reasons explained in Chapter 13, we dropped the term 'virtual world' altogether and replaced it with the term **synthetic world**, which suited our purposes better.

From this perspective a reconstruction in a 'synthetic world' of the Cite de l'architecture at Place du Trocadero, one of the key venues for the Paris Fashion Week, and the creation of suitable clothing to put in it, would not by itself consti-

tute the creation of a virtual 'world of fashion'. The reconstruction would simply offer viewers a virtual space with a particular kind of decoration. To create a 'world of fashion' would require a much more complex operation. It would involve creating or invoking a virtual culture within which the clothing, the events, and the venues, made a self-contained sense (Kelly, 2004). From this discussion came the decision that we would attempt to create a virtual culture: a culture which the students would enter as foreigners. We intended this virtual culture to appear coherent (that is, to make consistent sense once one accepted its axioms), and for students to have opportunities to engage with this as they would engage with any new and unfamiliar environment. We expected this sense of 'otherness' to form a key feature of the project, and so we decided that we would not begin to actually create an online 'world' of any kind until further research had told us what we could expect to find there.

3.3. Description of Activity

The students divided into groups and engaged in a series of discussions and brainstorming sessions. We encouraged them to find examples of "worlds" that appealed to them and to pitch these to the members of their team. Out of this process some groups evolved a consensus, while other groups failed to agree on a common theme. In this case we told the members to form smaller groups or pursue their own individual idea. At the end of the process each group or individual submitted a written outline of a proposed virtual world that they believed would meet the criteria we had presented to them. These fell into three broad categories, with a fourth set of one-off ideas.

Proposal 1: a virtual Arcada

The most popular proposal suggested that we should create a "virtual Arcada", and this had the backing of many members of staff. One submission proposing this claimed that

a virtual Arcada will raise our profile globally as it will draw in viewers from across the world. It can offer potential applicants especially from abroad a way of understanding something of the place before they arrive... It could offer guest lectures in order to attract viewers, and some classes for students could be held in the virtual college, progressing our goal of innovative distance learning.

(Kelly, 2002)

Other submissions went into considerable detail about which parts of the campus should feature in the simulation, and what activities should take place there.

Proposal 2: a galaxy far, far away

The second proposal arrived in several different forms, although these differed more in their detail than in their core idea. In each case the core idea derived in one way or another from the people and places depicted in episodes of *Star Wars*, *Star Trek*, *Stargate* or *Babylon 5*. The most detailed submission explained that

Omega is an artificial world, a huge spaceship really that stays in a

stationary position at the middle point between three star systems. One system is controlled by the Alpha who are fierce and...The second system is controlled by the Beta who are peaceful but...The third section is the Wild, which contains many different peoples who are continually fighting each other. Omega is a neutral trading place where people from each of the systems can buy and sell, and make negotiations...

(Kelly, 2002)

Other submissions in this category differed in their descriptions, but all had the same kind of relationship to the criteria we had presented; that is, they all had approximately the same strengths and weaknesses.

Proposal 3: a cave far below the surface of the earth

The third set of submissions drew their inspiration from *Dungeons & Dragons*, its many computer game offspring, JRR Tolkien's trilogy *The Lord of the Rings*, and Edgar Rice Burroughs' *The Lost World*. One submission described it like this:

There exists a huge network of tunnels under a volcano. There is only one entrance. The tunnels lead to larger and larger caverns as tall as apartment blocks. A race of dwarfs work in smaller caves where nobody else can go making things. Tools, furniture, everything that you need for living. They also have underground farms where they make food and drinks. The cave dwellers dress like Romans or Incas and live a largely peaceful life. They have pets like tiny dinosaurs and ride larger dinosaurs the size of horses. The tunnels seem to go on forever and some of them are still unexplored. There are all kinds of rumours about what is in the tunnels.

(Kelly, 2002)

In some ways this appeared similar to the previous proposal. It took a known and long-standing cultural meme and twisted it slightly in an attempt to make it fit our purposes. It seemed to appeal to a different group though, which we later learned correlated to the groups' favourite books and television series during late childhood and early adolescence.

Proposal 4: other proposals including a desert island

We received several other proposals ranging from "a sports stadium in which we can challenge teams from other colleges to play games, and try to get the other students to come and watch" to

a tribal camp where the tribe gathers and tells stories and makes, buys and sells tools. Sometimes the camp could move to another part of the deserted continent. Perhaps sometimes members of another tribe could arrive, bringing gifts with them, or wanting to start a war.

(Kelly, 2002)

One of these miscellaneous proposals envisaged

a desert island where the population seems to be people who have previously been washed ashore from shipwrecks. The culture is a strange mixture of different parts of the world, and over hundreds of years the people living there have formed into a number of tribes. Every year the

multimedia students are shipwrecked there, and have to work out what to do when they get to the shore. The island also has some unexplored areas where there are surprises to be found.

(Kelly, 2002)

This proposal contained considerably less detail than the others that we considered. In fact, it contained very little more than the quotation above and although, in retrospect, we can easily fill out the details if only because the idea seems very similar to the original inspiration for the television series *Lost*, at the time it seemed no more than a sketchy suggestion.

3.4. *Observations*

We examined all of the proposals in detail in terms of their advantages and disadvantages.

Observation 1: a virtual Arcada

We first rejected the proposal that we should create a "virtual Arcada".

We rejected the proposal on a number of grounds. Firstly, we felt that the task of creating a detailed and recognisable virtual Arcada would prove formidable, if not impossible. Unless the representation felt exactly like the real environment, then the students building it would receive endless criticism and feel under constant pressure. We did not believe that this would engender or sustain their enthusiasm.

Secondly, we could not work out how or why the culture of a virtual Arcada would differ from the culture of the real Arcada. Even supposing that students did manage to create a perfect simulation, what would it achieve? We intended students to feel part of an epic struggle to build something, not to feel that they had (merely) rebuilt what already existed.

Furthermore, the only clear descriptions we had received of its possible use suggested that a virtual Arcada would act as an advertisement or a recruitment tool; that it would "offer potential applicants especially from abroad a way of understanding something of the place before they arrive". Analysing why this made us feel uncomfortable proved extremely beneficial. It forced us to clarify an issue that would remain important for the entire life of the project.

This description contained a clear, albeit implicit, role for the project as a quasi-official mouthpiece for the institution. Not only would the proposed virtual Arcada act as an online representation of the real Arcada, it would also represent Arcada to the world-at-large. That would mean that it would need to achieve certain minimum standards of excellence at every point in its development and that, in turn, would mean that we could not easily run experiments that might fail. Since we had already stated openly that we did not know what problems we would meet or what steps we would have to take to solve them, we felt that we simply could not promise to achieve excellence to order.

In rejecting this proposal, then, we became very clear that the project must act as a research laboratory where we did not just accept failure but actively expected and embraced it. We also became clear that this meant that, as an institution, Arcada should take pride in our creation of an innovative online laboratory, and not on whatever month-by-month results that it might generate.

Observation 2: a galaxy far, far away

The second proposal seemed, on the surface, to meet many of the criteria that we had set out. It offered an environment that students would have to jointly imagine and it offered a culture (or many cultures) that the students would need to define and create. It also offered many programming possibilities.

We felt, however, that it contained one obvious, and several more subtle, problems.

In discussion, it became obvious that some students had grown up as fans of one or more science fiction series while other students had either missed or deliberately avoided them. Students therefore almost all had strong opinions about science fiction, and about science fiction fandom; but not the kind of shared opinions that would necessarily lead to harmonious working groups.

That fact, on its own, might not have deterred us. However, we also realised that we would face serious problems with the nature of the proposed world, in terms of the students' roles within it, and our desire to use it for in-house work experiences.

We tried to map out an extended period of time in the life of a trading station on the edges of three galaxies, and we produced several variations. Each of them seemed to require that surprising things happened on a regular basis. We could not manage to escape from the shadow of *Star Trek: Deep Space Nine*, the television series that ran for seven series beginning in 1993 and which took place on a space station at the very edge of the "Third Quadrant", with diplomatic, military and trading factions living and working on board.

The series succeeded because *Deep Space Nine* lay at a specific point where different civilisations interacted, and thus at a point where unexpected events could occur every week. In other words, its position, and the events that occurred as a result of its position, formed a key part of the experience of living or visiting there. Anyone visiting such a place would naturally find themselves surrounded by unfolding chains of surprises, coming face-to-face with dangers, and participating in events larger than themselves.

This might form an ideal setting for a role-playing game but, if we viewed our students entering a virtual world as figures acting in a given background then, in this case, the ground seemed altogether too active and distracting.

We found a further problem with regard to our need to set assignments within the world. We had thought about assignments ranging from designing advertisements for in-world products to actually manufacturing examples of those products using graphic and 3D modelling software. In order to set such assignments, we would need to establish clear criteria for success and failure. If, for example, we asked students to imagine that the Finnish soft drinks company Hartwall wished to launch Dr Pepper in Finland, we could easily create suitable criteria for the project. We could ask students to describe which segment of the population the new product would address, we could ask them to produce a campaign or single advertisement, and we could ask them to produce a presentation comparing it to other, current campaigns aimed at the same market segment. All of this would provide useful pre-work experience that would remain relevant in subsequent courses and after graduation.

On the other hand, if we asked students to engage in such an exercise inside the world of *Deep Space Nine*, or somewhere similar, then it would all too easily turn into an amusing debating game with little or no real-world relevance. The more able students would produce more amusing pastiches and parodies, and would attempt to argue that whatever they had done met the

Klingon or Romulan expectations exactly. Presenting assignments would become a very entertaining activity but it would have little or nothing to do with work life on Earth.

We recognised that including some elements like this within the world we built might well add to its delights. However, a world that consisted entirely of this would simply not meet our pedagogical goals.

Observation 3: a cave far below the surface of the earth

In some ways this appeared similar to the previous proposal. It differed, however, in that it replaced the need for continuous background action with the idea of rumours which need only very occasionally lead to anything actually happening. Despite its obvious links to *Dungeons & Dragons*, we found it much easier to imagine how this world might evolve without existing as part of a role-playing game.

We found it harder to imagine what roles the students might adopt there. We had suggested that the users would exist in the virtual world as visitors, or foreigners, and this world seemed, almost by definition, hostile to visitors and most unlikely to encourage tourism. The longer we thought about it, the more convinced we became that, to make this world work, students would need to adopt the roles of the cave-dwellers themselves.

This, in turn, prompted us to look again at our idea that students should exist in the world as visitors. We originally suggested this because we wanted students to have to interrogate the world in order to arrive at an understanding of it. We had concerns about the way in which many (but not all) students seemed unwilling to raise questions during assignments, but instead tried to find ways to operate within their comfort zone; to twist the assignment to match their self-assessed strengths. Challenged to imagine that Hartwall wished to launch Dr Pepper in Finland, the majority of students would almost immediately open Photoshop and start designing a poster. This poster would inevitably reflect how little questioning had gone into its design, and would resemble a generic poster for a canned soft drink. The same would happen if we asked students to design a web site for a service for old people. Many would think briefly about which aspects of web design reflected their strengths best, and then design a site that demonstrated these strengths regardless of their conceptual relevance to the brief they had received.

We had three intentions. Firstly we hoped to establish a world with a culture of its own that showed internal coherence. Secondly, we intended this culture to appear foreign enough to the students that they could not immediately believe that they "knew the rules", but had to stop and think at each stage. Thirdly, we wanted the students to feel that their worked contributed to building this culture: that the work they produced would enter the world and become part of the puzzle that the following year's students would have to figure out.

Upon reflection, we reaffirmed our original decision because we continued to believe that this process would fail if students lived as natives, and therefore played the people who themselves made up the rules. Once again we would create a situation in which debating replaced discovery, whereas we wanted to encourage both. It would also risk generating a world which became increasingly divorced from reality and generated its own inspiring but pedagogically irrelevant mythology.

Observation 4: a desert island

The miscellaneous group of ideas almost all had obvious and fatal flaws. They relied in the main on the co-operation and participation of unidentified groups who may have no interest in the idea, and may not, in the end even exist. The flimsy proposal for a desert island, however, proved a very useful suggestion.

The creation of a remote island seemed both useful and practical. In practical terms it set specific borders to the simulation and it provided a logical explanation for why users could not travel beyond these borders. This would make the virtual world easier to build, and focus attention on making the user experience in the playing area richer rather than making it larger. The idea that, for some reason, the culture of the island had developed as a jumbled mixture of remnants from other cultures also served our purposes well. It could mean that individual elements of the island's culture would seem familiar, but the social rules governing the ways in which they got put together would need exploring and would take time to resolve. The environment would thus appear foreign without seeming completely alien. We could use it to generate assignments that resembled or paralleled real life, while still containing unexpected and challenging elements.

We felt less happy with the admittedly slender back-story and with the idea of staging a mock shipwreck every time we needed to bring new students to the island. This also seemed impractical as a mechanism for opening the island to a wider public. We therefore decided to adopt the idea of a somewhat mysterious island, while defining a more practical back-story that would enable us to invite people to the island, and also to draw elements from the other proposals that we had considered seriously.

We appreciated the idea of a place that existed at the edge of different worlds and thus straddled different cultures. We liked the idea of a world filled with rumours, most of which did nothing more than enrich the ambience. We felt that we could turn all of these into useful pedagogic tools.

3.5. Outcomes

We drew up a description of the world that we now proposed to build. We based this on the short description of an island, and made various suggestions that drew elements from the other proposals. We suggested that the island might have an educational institution that we could compare and contrast with Arcada: that we could use to explore and play with ideas of training and instruction. We suggested that the island might have different factions.

We received mostly positive reactions to the description. Since no group had obvious ownership of the idea it had no immediate champions. Many people described it accurately as vague. We acknowledged this as a factor we should include in the next experiment.

CHAPTER 4 DISCOVERING AN ISLAND

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We had long experience of students retrenching to their comfort zones when faced with challenges. We also had experiences of our students' preferences for practical activity rather than contemplative thought. We therefore looked for a mechanism that would inspire the students to create an island that would stretch their abilities and inspire them.

Once we had decided to use the idea of a remote island as the basis for the world we intended to build we also agreed that we wanted the island to exist somewhere in the real world. This would provide a link to that might prove useful in terms of defining projects that had pedagogical value. Having decided this, we did not feel that we could site the island fifty kilometres off the Finnish coast, or the English coast, since this would clearly label it as make-believe. If we located the island somewhere in the Nordic area everyone would immediately recognise it as fiction, and might reasonably expect it to offer amusing, insightful or parodic commentaries on Nordic life. We might therefore find ourselves producing an ongoing entertainment that distracted from our overall goals.

We agreed, therefore, that we needed to situate the island somewhere isolated, but not too isolated; and that this isolation would need an explanation of some kind.

4.1. Research Question

The island that we will build exists somewhere on Earth, in the present day. This "somewhere" needs to fit in with the criteria that we have been developing. Where should we position the island and why?

4.2. Description of Activity

We did not intend this as lengthy project and we therefore asked a group of students to spend a week or so looking at maps and searching on the web to find suitable locations.

During this process we had held meetings with members of other departments at Arcada to determine whether they would have any use for a simulated world in their own courses. One of the earliest enthusiasts, Henry Clay Ericsson (then leader of the international business department, and now Associate Professor at Arcada) had developed simulation games that he used with his students in order to give them practical experience of business decision-making. He had created fictitious business environments and the students played turn-based games in which they created a business, submitted their data to him, and received back the information they needed for their next turn. He immediately saw the possibility of using an imaginary island both to provide consistent data for these games and to give the students a way of visualising the environment within which they were working. He therefore joined in the process of locating the island.

We received a number of suggestions, but a consensus built up around the idea that we should locate the island somewhere in the Mediterranean. Several students then looked in detail at maps of the Mediterranean, and suggested that we locate the island almost precisely half way between Crete and Malta, above the Libyan coast. This placed it at the edges of Europe and Africa while making it remote enough for most people to have no fixed ideas about.

One student then presented a website promoting holidays in Gozo. Neither we, nor anyone else in the room, had ever heard of Gozo (a small semi-independent island that forms part of the Maltese archipelago), and this clearly demonstrated that, from a Nordic perspective, some real-life aspects of the Mediterranean did appear indeed isolated - but not too isolated.

We held informal tests and satisfied ourselves that our potential target groups (primarily young Finns, Swedes, Britons and Americans) had only the flimsiest grasp of the geography of the southern Mediterranean. Nobody we talked to had ever heard of Gozo, and some believed that we had made it up. We felt that hiding our island there should not prove difficult.

Henry Ericsson then calculated a precise geographical location for the island: a longitude and latitude of approximately N35° 40' E19° 30'. We now had almost everything we needed to begin the process of imagining and building the island.

The precise nature of the island emerged from the fortuitous discovery of an old and out of copyright magazine story, *Sexton Blake and The Time-Killer*, first published in *Union Jack*, issue 1,071, on 19 April 1924; and subsequently republished in *Shadows of Sherlock Holmes* (Davies, 1998).

SextonBlake.co.uk describes *Time-Killer* as a story in which "Sexton Blake encounters a ghostly hound on London's underground, is commissioned to find stolen microbes, searches for a lost Lord and a Trade Union Leader, and ends up on a very mysterious island". The story takes place partly in London, and partly on a Mediterranean island called Rosario. The anonymous author described the island in sufficient detail to provide a basis for an online world, while leaving enough more than enough gaps to allow the designers to work creatively.

The story's convoluted, and somewhat ham-fisted, plot revolved around a Welsh

scientist who has invented a zeta-ray which slows down the perception of time. He has fled to Rosario in pursuit of an English Member of Parliament, and both subsequently need rescuing by Sexton Blake, a cross between Sherlock Holmes and an action hero who, at the time of publication, commanded as much popular attention as Holmes.

When Blake arrives in Rosario, with his young assistant, "Tinker was reminded vaguely of the mean quarters of Veracruz, or the native bazaars of old Damascus. The shops were huddled together in astonishing confusions. There did not seem to be any windows, although great piles and pyramids of apples, golden oranges and luscious purple grapes lent vivid patches of colour to their sombre background." (Davis, ed, 1998, p301)

The small village that serves as Rosario's unnamed capital had "the stragglng native quarter of the Rue Scribe" where Blake "neared a garishly painted cabaret, sandwiched between a dingy-looking cafe and a curiosity shop. Over the door, in letters of faded gold, were the words, 'Fan-tan Saloon'. Blake entered. The place was full of evil-looking Rosarians of the lower class, and the air was thick with clouds of rank tobacco smoke". (Davis, ed, 1998, p308)

The island exists only as an exotic backdrop for a story of little consequence. Nonetheless the writing provides definite clues as to the nature of the place with its faded air and suggestions of grumbling and ineffectual hostility. These provide a starting place for communal imagination - a starting place that none of us would have devised by ourselves. As such it seemed ideal for our purpose.

4.3. *Observations*

Situating the island in the southern Mediterranean immediately created a lot of opportunities. It meant that students would have definite climates, geography and wildlife to research when designing the island. It gave objective boundaries for possible answers to questions such as "what animals live on the island?" and "what weather does the island experience in winter?" It also gave us neighbours, including not only countries in southern Europe but also Libya to the immediate south of the island. These would also provide boundaries when we asked the students to flesh out the online world by imagining life on the island.

Our complete ignorance of Gozo opened up the possibility that we might present our island as "real"; that we might situate it on the border between fact and fiction. We felt certain that we could use this to trigger discussion and debate in a number of media theory courses.

The discovery of *Sexton Blake and The Time-Killer* completed our conceptual toolkit. It gave the island a name and, more importantly, it gave us a bible that we could refer back to whenever a student tried to turn the project into something easier or closer to home. If we accepted the descriptions of the island in the story as canonical then we had an almost objective mechanism for rejecting ideas that could not fit into the canon. If students wanted to create a Rosarian space programme, because they were science fictions fans, then we could refer back to the story and challenge them to explain how these people on this island could possibly develop, or afford to develop, such a thing. We could then challenge them to find another, more plausible, science fiction-based concept that they could fit into the canon.



The position of Rosario in the southern Mediterranean

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In this way, tying the development of the project to an obscure and out of copyright external source, would give us a resource that we could use to stimulate the students' imagination and direct their thinking away from the mundane and conventional.

4.4. Outcomes

We decided that the geographical location of Rosario, and the description in Sexton Blake and The Time-Killer, would form the starting point for our thinking. Now that we had agreed them, they would become non-negotiable and all our ideas must make sense within the parameters they set.

CHAPTER 5: UNDERSTANDING ROSARIO

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We invited a group of students to read the Sexton Blake story we had discovered. The story takes place in 1923, and we asked them to imagine how the island had developed since then, and to create a tourist map of the island as it exists today.

We told them that the map should contain objects and places that they themselves would both want to build as designers, and look forward to visiting as tourists. Since they would form part of the building team they should take care to make certain everything on the map fitted into both categories. They should not, for example, include a race-track on the island unless they themselves would agree to assist in solving the problem of how to build moving vehicles.

The exercise took two weeks and produced a series of maps, none of which worked as a blueprint that everybody could agree with. However, from another perspective the exercise constituted a triumphant success. It served to enthuse the students, most of whom became committed to the island during the course of the exercise. It also brought a series of conceptual problems into focus in an extremely clear way. Once these had caught our attention it seemed clear that we would need to attend to them before even considering moving on to attempting to model the island.

These issues included:

1. the problems of starting with a *tabla rasa*;
2. the specificity of place;
3. questions of scale;
4. the desirability of complete vs partial representation;

5. the relationship of the representation to the 'real' world.

These had nothing at all to do with "building a 3D world", but we felt that we needed to address them before we started building anything, in order that we understood exactly what we intended to build, and why.

5.1. Research Question

We intend to create an island named Rosario, situated in the southern Mediterranean. We will use this within many projects in your course over the next three years. We will only have time to build it once. What do we need to understand, and what do we need to decide, before we begin the process of building the island, in order to give ourselves the best possible chance of building it successfully?

Please note: we will deal with questions about software and programming separately. This question concerns itself solely with problems relating to concept design.

5.2. Description of Activity

We addressed the questions within a course designed to explore issues that might arise within professional concept design. We presented this project as a brief from a client and suggested that the students attempt to order the questions and then work through them sequentially. The students opted to begin by trying to determine the size of the island.

Questions of scale

Sexton Blake and the Time-Killer offers few clues as to the size of the island. Since Blake describes it as having a "main village" it obviously contains at least two or three smaller villages. However, we cannot take the term "village" uncritically, since the story appears imbued with a nineteenth-century sense of British national superiority. A modern reader could justifiably read the term "village" as an example of Blake's smug dismissiveness, rather than as a literal description.

Students read the story once more and then analysed all the maps of the island that they had jointly created. Some students had created islands that could scarcely provide shelter for more than fifty people, yet somehow contained an art gallery, a museum and a cinema. Others had produced islands that might have contained the entire populations of France and Germany and still had room for more. Their sketches also varied greatly in their implied population densities. Some suggested small, highly populated places like Malta or Hong Kong. Others suggested large masses of land with small populations thinly spread out, like northern Finland.

The students realised that they needed to clarify both the size of the island and the size of the population before they could begin to imagine the nature of the island in any detail. Once we had established these as axioms we could calculate further data such as the population density, and from this we could begin to create a workable map.

The students researched the existing islands of the Mediterranean online, and, through a process of comparison and averaging, concluded that Rosario would have a landmass slightly smaller than Malta, and a population half

as dense. It would cover approximately 280 kilometres square, and have a population of approximately 200,000.

Complete vs partial representation

Two of the students had created maps, not of the island as requested, but of the "main village". During the discussion that followed several other students suggested that, although they appeared to have got the assignment wrong, they might have actually spotted a flaw in the assignment and produced a better solution to the underlying problem. Could we really model the entire island, they asked, or should we concentrate on just part of the island? They eventually arrived at a consensus. We needed to know about the entire island, and to have it mapped out, although we would concentrate, in the beginning, on creating only one part of it. If we did not map out the whole island then the town or village that we designed would inevitably start to build up inconsistencies over time. To give one simple example: road signs leading out of the town should display both destinations and distances in a consistent manner. If different students created improvised road signs for different courses, then they would soon cease to seem believable, even as items in a make-believe world.

This belief arose in part from the knowledge that Gene Rodenberry oversaw the production of a 1,000 page bible for the original *Star Trek* television series, before filming even began. This detailed hundreds of background "facts" about Klingon and Romulan culture and history, and about their changing relationships over time. It also contained hundreds of facts about the Federation, its expansion into space and its first meetings with other races. Much of this information never made an appearance in any actual episodes. Rather, Rodenberry intended that it would serve to provide consistency within the *Star Trek* universe by providing a single source of canonical answers to questions writers might have while plotting individual episodes. As the series progressed the events depicted in each episode got added to the bible so that the writers of later stories could refer back to them.

The students argue that this should form the basis of our working methods too. From this grew the idea that the overall project would become self-documenting. We would house the growing number of facts about the island in a library on the island itself.

The specificity of place

We had asked students to familiarise themselves with one or more versions of the example SCOL Worlds. After playing with these they raised questions about their apparently generic nature. The urban street scene, for example, did not seem to depict a street corner from any specific city, but rather to contain elements that referenced cultural clichés about urban street corners. One comment suggested that it resembled "an old Finnish man's idea of a New York ghetto, if he had never been to New York". The scene contained graffiti, but the writing said nothing offensive or incomprehensible. Our ability to understand the graffiti disturbed the students. "When you go somewhere and look at tags on walls then it is all in local slang or says things about gangs and fights and territories that you don't know about. If you want to know what it means then you have to ask someone - and usually you don't".

We then gave the students a research exercise investigating what kind of "virtual worlds" already existed on the web. We gave a group of about 16 students

a list of URLs and asked them to report on their feelings about the worlds they found there.

We expected them to return with a shopping list derived from technical comparisons. We expected comments such as "can we have animated avatars? Can users choose the clothes for their avatars?" Instead we received back our first philosophical conundrum. The students, almost without exception, reported that they felt something missing from the worlds. They seemed unable to describe this feeling at all specifically; they simply agreed that the worlds "didn't feel right".

We sent the group to explore more. and asked them to try to find precise descriptions for what they meant. Eventually we got two enlightening answers. Firstly two students claimed that they experienced something "hollow at the heart of the worlds". Secondly, another group explained that they felt as though they had wandered around stage sets for a play *about* a world, rather than experiencing a feeling of having wandered around a world.

A consensus formed that the worlds felt like cardboard boxes painted in one way or another. As one student said, "When I went to the Venice world there was no Venice-ness about it".

We spent considerable time trying to understand how designers might generate this feeling of Venice-ness. Eventually we realised that the problem lay not in the particular method of generating the world. but rather in what the world consisted of. In the real world, even in cultures affected by globalisation, every place has specific factors that help define it and help differentiate it from other places. Graffiti provides one small example. Others might include characteristic sounds and smells, and specific visual formations and conjunctions.

We therefore asked ourselves: in what do we find the Paris-ness of Paris or the Espoo-ness of Espoo? We drew up lists and created mind maps to show the relationships. We looked to find patterns that we missed in existing online worlds with a view of seeing if we could introduce them in our world. Some elements, the smell of croissants, for example, we put to one side, because we recognised that we simply did not have the technical ability to simulate them. Others we compiled into a set of targets for the project. Taken together they served to corroborate our belief that we needed a rich and coherent backstory, and a visible context for the objects found in the world. They also underlined the fallacy of beginning with a *tabula rasa*; of attempting to start drawing an island on a blank sheet of paper.

The problems of starting with a *tabula rasa*

People and objects live in time as well as space. This may seem a banal observation but we came to realise that it has vital consequences for any attempt to design virtual worlds. People age and as they do a lot of inconvenience becomes attached to the process. Sportsmen like boxers, for example, attempt to change their approach and style to cope with their diminishing speed, in the hope that experience can compensate for dwindling power. Landscapes, the collection of objects that together comprise a specific place, age in an analogous way, generating inconvenience for their inhabitants as they do. People then attempt to change their behaviour and their habits to accommodate these inconveniences.

The Dutch architect NJ Habraken has explored this process at great length and in great depth in his book *The Structure of the Ordinary: form and control in the*

built environment. Here he looks at the way several cities have changed their form over several hundred years. He points out the ways in which the siting of objects like churches in the past has forced later development to fit itself around them.

In most European cities and towns streets do not line up in the grid-like fashion found in cities like New York, but instead wind around churches, market halls, palaces, courts and old landmarks. The result of this forms a specificity which we encounter as one of the essential factors in, for example, the 'Brussels-ness' of Brussels.

The beliefs, habits, customs and laws that determine how and where objects get built in a specific place, and who may or may not decorate them and to what extent, form a key part of the culture of that place, if we also include in our definition the cumulative effects of the decisions made over time which, taken together, may seem muddled or contradictory. This kind of learned culture acts "like a lens which filters all the information we perceive through our senses; sensory information passes through this lens of culture and is filtered, or interpreted, into a recognizable pattern that has meaning." (Miraglia, Law & Collins, 1996)

The presence of a learned culture, being contended and extended, gives a place its specificity, and creates the feeling of "what it is to be" there. By way of an example, we might look briefly at the controversy of General Mannerheim's statue in the not-too distant past in Helsinki. The plans for Kiasma, the modern art museum in Helsinki, included a proposal to move the statue of General Mannerheim some short distance. This provoked a large and unexpected public controversy, and for a time it looked as though the entire project would prove unacceptable. To understand this controversy an onlooker would need to know something of Finnish culture, and specifically something about the totemic importance of Mannerheim in that culture. Without that very specific knowledge, for a foreigner operating outside that culture, the strength of the argument, and the reasons for it occurring at all, would seem absurd and meaningless. The totemic significance of Mannerheim in the story of Finland forms a key point in the Finnish-ness of Finland and moreover the consequences of this significance play a determining part in the physical shape of Helsinki.

We realised that we would need to find a way to simulate this historical process, at least in outline, if we wanted to avoid creating another hollow world.

The relationship of the representation to the 'real' world

We had decided to set our world on a fictitious Mediterranean island. We now needed to decide on the status of this world. We realised that we needed to start by positing a culture but we had yet to agree whether we wanted this defined as a work of fiction, or as something else. From a pedagogical perspective we wanted the students to take the existence of the world with some seriousness: to view it as an interesting experiment and not just as "a bit of fun". We felt that, to many students, a fictitious island available online might easily seem trivial, childish, and not worth bothering with. TVBorgå had an audience of indeterminate size, who knew nothing about who made the programmes, and how. We realised that we still lacked the equivalent of this element. We therefore decided to add another layer to the project.

A group of students suggested that we treat the initial research as part of the overall project by asserting that the project had already begun sometime in the



An early map showing the main landmarks on Rosario

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recent past; a time when Arcada had taken on the Rosarian government as an external client. The entire project would therefore function as an international partnership (Kelly, 2003, p1) designed to fulfil the Rosarian government's brief.

The government of Rosario wished to raise their profile, for reasons that we did not wholly understand. We therefore needed to move from a position of almost complete ignorance to a deep and sympathetic understanding of contemporary life on the island. We would begin by bringing into existence the geography and history of Rosario, and publishing them in English translations.

We would introduce the needed additional layer by adding an element of hoaxing to the project. We would aim the project into the grey area between fact and fiction, with the intention of having the island appear as real as possible. We looked again at the web site for Gozo and asked whether, and how, we could deduce from the site that Gozo actually existed. We decided that we could not: we could only attempt to determine its existence by looking elsewhere and seeing if we could uncover other references to it. We decided that this would give us a reason for staff and students to take the project seriously. We would produce a real web presence for an island and a culture whose authenticity remained ambiguous and that required the user to carry out her own process of verification.

This gave us some interesting and useful limitations for the overall project. The island did not have a public profile, and the rest of the world knew nothing about it. It must therefore appear to have an unexceptional culture that seemed too dull or too quiet to capture any public attention. The interesting parts of its culture must somehow lay hidden from view, by accident or design.

Rosarian web sites

After several brainstorming sessions the students agreed that the practical outcomes of the project should begin with a set of web sites. They began with the official government website of Rosario, and this should eventually contain an interactive 3D model of the island's capital city complete with chat facilities, working buildings and in-world banking. We also agreed that visitors to the site should feel like visitors to a foreign country.

5.3. *Observations*

This project laid the foundations for practical work that followed. We moved from a general idea to a plan for producing a quite specific creative work with clear pedagogical goals. Moreover we established an important principle of self-documentation, in which we would create the documentation of the work as part of the project, and would make it available within the boundaries of the project.

5.4. *Outcomes*

The first, skeletal, version of this official web site publicly launched on January 22nd 2003 at www.marinetta.net and the organisation of the launch formed the outcome of a project for students training as cultural producers. According to notes posted on the site in February 2003, the project aimed to construct La Mentala Rosario, an online representation of the history, culture and commerce of the Mediterranean island of Rosario.

We intended it to explore the theoretical and practical pedagogical possibilities such a simulation might provide.

Later we would expand the project's web presence to include a wiki that documented two thousand years of the island's history in great detail, because, as we progressed, we found ways of incorporating more elements from the original suggestions. We followed this with La Voco, a newspaper-styled website that documented the development of the project as it happened, in the form of news items and reports from Rosario.

Finally a student group created a website posing as a bone fide tourism site. This provided details of the island's highlights and attracted several genuine inquiries from would-be tourists during its life-time.

CHAPTER 6: THE GEOGRAPHY & NATURAL HISTORY OF ROSARIO

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By this point we had developed a consistent methodology for running brainstorming sessions, and creating assignments. We always sought to inject arbitrary limitations into any scenario we presented. We had discovered that constraints served to prevent students immediately retreating to safe ground and playing to their strengths.

We had also discovered that constraints which appeared arbitrary or ridiculous served to level the playing field. Given a blank piece of paper some students started leapt forward while others shrank back. Given a seemingly ridiculous limitation the group usually united in outrage or mirth, and thus felt less vulnerable in proposing ways forward.

In proceeding in this way we had, in effect, begun to uncover the method of working that Jane McGonigal termed "pilot experimentation" almost a decade later, and described as "the process of designing and running many small tests of different strategies and solutions in order to discover the best course of action to take" (McGonigal, 2011, p298). We would continue to use and refine this method throughout the life of the project.

At this point we knew where to find Rosario on a map and we had determined a set of criteria we needed to meet in order to make the online depiction of Rosario appear as more than just a generic set of buildings in a generic environment. We now needed to map the island and create a list of important features that a visitor would expect to find there. There would include both natural landmarks and human artefacts.

6.1. Research Question

We now know where to find Rosario, and we know a little of what we might find there. We have established a set of issues we need to keep in mind as we fill in the gaps in our knowledge about the island. What, then, does Rosario look like? Specifically:

1. What does a map of Rosario look?
2. What natural features would a tourist see?
3. What animals and plants can you find on the island?
4. How does the island relate to the sea?

6.2. Description of Activity

The students began by sketching various maps of an imaginary island. These all included different configurations of the main landmarks and services that students expected to find: an airport, a beach, hotels and restaurants, and so on. On observing their progress, we brought the exercise to a premature end and asked the group to consider what they had done so far. It appeared to us that they had based their maps on an amalgamation of memories from their own experiences and their experiences of absorbing information from media. Each island seemed to map no more than a sample of one young adult's personal reminiscences. Moreover, each island had the perfect size and shape for whatever it contained. Each island resembled an architect's sketches for a planned theme park.

Fortunately Habraken's writings (Habraken, 1998) about the historical development of cities suggested a way forward. In the real world people had necessarily used their surroundings to determine what they built, how they built it, and where they sited it. These decisions, in turn, had helped to determine the bases from which each specific civilisation grew. Individuals found themselves living within a pre-existing culture, and made the best lives they could in the circumstances in which they found themselves.

The Rosarians must have done the same.

The shape of Rosario

We needed to find a way to create an island that we had not designed with our own ulterior purposes in mind and then, following Habraken's lead, we needed to work out how a population might have developed there. After several attempts to sketch such an island I realised that any attempt to do this would, almost by definition, prove impossible. I could not step outside my own assumptions and preconceptions, any more than the students could. I therefore decided to take an existing island from a world map and borrow that. I decided not to take another Mediterranean island, since that would allow for simple duplication or plagiarism, but instead to take some other landmass and move it to the Mediterranean.

I looked at an online world map and, for no predetermined reason at all, copied the continent of Africa into Photoshop. I flipped it upside down and then stretched and rescaled it to the approximate physical dimensions that Henry Ericsson had indicated the island should have. This produced an island with a very specific shape: with contours, with mountains and valleys, and bays. The island bore no resemblance to any of the islands that any of us had

sketched. Its coastline did not contain suspiciously convenient bays placed exactly where we might want them, and the hills and valleys did not fit neatly around flat areas where cities might grow. In fact, the map contained a large number of problems and inconveniences that might take an island people several thousand years to negotiate and surmount.

Mountains and valleys in Rosario

Although the island did indeed have hills and valleys, we had no immediate way of determining their height and depth. This became the next exercise, and we used it to develop our historical research method. We had already determined that the island could not appear too unusual, since we wished it to appear plausible. It must seem the kind of place (like Gozo) that had maintained a level of obscurity through having no obviously extraordinary characteristics. We therefore reasoned that in general Rosario must have features that reflected regional averages.

The students researched the key features of the land areas in the southern Mediterranean and northern Africa, and from their results we derived a contour map of the island. It had hills and plains but only one feature that anyone could reasonably describe as a mountain.

Climate in Rosario

We reasoned that we could also determine the likely climate of the island by comparing it to its neighbours and averaging the resulting figures. We could then use the same process to determine its seasonal variations. By this method a team of students created a meteorological profile of the island, and this, in turn, gave us significant clues as to what animal and vegetable life we might find there.

Plant and animal life in Rosario

The meteorological profile formed the basis for determining the vegetation on the island. If a plant grew in Crete and Malta and Libya then it almost certainly grew on Rosario. If it only grew in one or two of the neighbouring countries then we needed to investigate further.

Once we had established flora and fauna, we moved onto birds and animals, using the same process.

Although we did not intend, at this stage, to examine the lives of the Rosarian people, it became clear that sardine fishing must have formed an important part of their livelihoods.

6.3. Observations

Several students asked why we needed to work in such detail. For them, the process seemed unnecessarily laborious, and a very roundabout way of making an online world. Other students found the process interesting in its own right, and expressed no such reservations. By way of response, we pointed out that the project had a minimum projected lifespan of three years and that we intended to use the world within future multimedia courses. We therefore needed to treat its creation with a degree of seriousness and attention to detail because any contradictions or logical flaws would render the world incapable of bearing the weight of future assignments.

We gave several examples. Imagine, we said, that



One of the initial range of eBooks chronicling the island's history

in one year's time we ask you to design a marketing campaign for Rosario's leading brand of beer. Perhaps it might draw upon the national animal or plant for a logo, as a Canadian beer might use a moose or a maple leaf. That, in turn, implies that either you know what forms the national symbols of Rosario take, or that we allow each of you to make up your own national symbols. If we follow the second course then the project will have no value of the kind that TV Borgå has, because it will not impose any external constraints. It will just be something that we make up as we go along.

So we will follow the first course, which means that we need to have a lot of background information to hand, and that information has to have an internal coherence. We need to create that information from a firm foundation, and that means we need to understand the island, in terms of its geography and history, before we create its present day life.

(Kelly, 2002)

The geography of the island inevitably formed the ground from which the Rosarian culture grew, and therefore required careful consideration. Once created it would become axiomatic and increasingly difficult to change. The realisation by several students that sardine fishing must have had a historical importance on the island clearly demonstrated both that the background would have a direct bearing on how we developed the narrative of the island and that, once decided, it would become difficult to alter retrospectively, without making a nonsense of the work done up to that point.

6.4. Outcomes

These exercises proved an interesting exercise in comparative analysis in which everybody, including the staff involved, emerged knowing considerably more about the spread of life throughout the southern Mediterranean. By the conclusion of this project we had a clear idea of the nature of the island, and of the features of the island that must have shaped the culture of the Rosarians.

We had a set of detailed maps, and we published the first of a series of eBooks, documenting the geographical and botanical aspects of the island. This formed part of our programme of self-documentation. In line with an earlier decision, we published the information we had gathered as the English translation of a Rosarian handbook with the intention of using our internal, background research as part of the project's public narrative.

By this point we had moved from a decision to build an online world to a clear understanding of what form this world would take. We knew what shape the island world would have and where we would find it. We now needed to understand about the inhabitants of the island, and we soon discovered that constructing a coherent history of the Rosarian people would involve a much lengthier process.

The students decided that we should continue to use the method of comparative analysis. They set out to derive the initial and most general historical and geographical information by comparing the histories and geographies of Malta and Crete, with some reference to southern Italy; and the history and geography of Libya, with some reference to Tunisia and Egypt.

They proceeded by averaging these. They did this through a process of desk research, using books and online resources, in which they drew up tables of similarities and differences between the histories and cultures of their target countries. They used these as the basis for a series of brainstorming sessions in which they aimed to decide whether, at each point in the island's development, which parts of Europe or Africa had most influence, and in what ways. Using this methodology the students produced a very general view of almost two thousand years of Rosario's development.

We developed this approach in order to provide a consistent and useful backdrop to the world. We recognised that all cultures have certain defining myths concerning their origins, the growth of key institutions, and about why elements of their culture have the form they do. These myths characteristically take the form of historical events whose status has become elevated. The myth of Englishness, for example, would almost certainly start with a pass-

ing reference to Queen Boadicea and King Alfred, but begin in earnest with the Battle of Hastings, before moving on to the Crusades, the Elizabethan age and the Civil War. These form some of the core elements in many popular histories that seek to define a form of "Englishness".

Myths of Finnishness, in contrast, cover a shorter time span and, to some extent, artists have composed them retrospectively. Eliot Lönnrot composed the *Kalevala* (in 1835 and 1849) as a self-conscious attempt to create a Finnish national identity from elements of Finnish and Karelian folklore.

The students saw themselves as, in some ways, following in Lönnrot's footsteps. They too intended to create a national identity by weaving together elements from an imaginary past. In their case, however, this history would serve an imaginary present.

7.1. Research Question

We gave the students a set of five interlinked research questions.

1. How would Rosarians today describe themselves?
2. What national characteristics do Rosarians display?
3. How did these characteristics arise?
4. What historical events played important roles in creating Rosarian national identity?
5. What institutions support these?

7.2. Description of Activity

The initial research proceeded smoothly. However it rapidly became clear that we would need to create historical events to explain elements of national identity, and that we could not create these at will without making it obvious that we had made the whole thing up: something we had previously agreed should remain a matter of doubt for the casual viewer.

To the process of averaging we therefore added another tool. This involved looking for genuine gaps in official historical records and then attempting to insert Rosario into them in a convincing manner. One student, for example, sought to find a reason for a link between Swedish culture and Rosario, in an attempt to find a reason for Arcada's involvement with the island that appeared more than arbitrary. He argued that Arcada should have a clear reason for interesting itself in Rosario rather than any other small insignificant island, and that the only obvious reason would involve some historical link between Rosario and either Finland or Sweden. His work in pursuing this idea illustrates the approach that the group developed.

After much research, he found that in

859 a Viking expedition under the command the sons of the legendary Ragnar Lodbrok, left Sweden for the Mediterranean Sea with 62 ships. At first they were beaten by Christian and Moorish armies, but at Gibraltar their luck turned and they plundered the city of Algericas and then continued to the Moroccan coast and Balearerna ... They returned to Sweden in 862, after further battles, with only 20 of the 62 ships remaining.

(Weckström, 2004)

An eighteen month gap genuinely exists in the historical record, in which the Vikings' activities remain unrecorded. Using this historical fact he carefully managed to insert elements of Swedish culture into Rosarian history in a way that would seem completely convincing if Rosario actually existed. Through this technique we uncovered many other events linking the development of Rosario to development in the wider world.

The Importance of the Mighty Fiction

It became very clear in the early stages of the research that, for much of the island's history, most people on Rosario must have had hard lives. They had access to few resources and lived mainly on fish and vegetables, with milk and cheese from the small herds of muffalo. We wondered how they coped, given their isolation. This became a subject of discussion and research as we explored possible coping mechanisms.

We finally realised that their culture had prioritised story-telling, and in particular the telling of tall tales. Much like us, they delighted in walking the tightrope between fact and fiction, between bitter truth and entertaining lies. The Rosarians conceived the idea of the "mighty fiction", a story so plausible and uplifting that people drew comfort from it, and then later, when they discovered the truth, drew comfort again from the realisation that somebody on the island had had the wit to create such a magnificent untruth. Through this mechanism they told themselves stories about their existence that served to make their existence bearable and served to make them feel the most fortunate people on earth.

The idea of the mighty fiction also served our needs well. The students had opened a wiki where anyone could create an entry about an event in Rosarian history, or a famous historical character. Inevitably some contributors failed to grasp the subtleties of the story and attempted to add threads that made the island an obvious hoax. For example, someone did indeed insert entries about the Rosarian space programme, famous Rosarian astronauts, and the fact that the Rosarians landed on the moon ten years before the Americans. As explained earlier, both to the students and here, these did not fit the project for the simple reason that any attempts to launch rockets from a small island in the Mediterranean would have rendered the island globally visible. The Rosarians would have achieved the international status of North Korea, rather than the near-anonymity that had clearly become their fate.

Quite reasonably the students acting as editors of the wiki wanted to delete these entries. The concept of the mighty fiction, however, gave us a third option, other than letting them stand or removing them. We had the ability to reframe them; to say that, yes, Rosario had celebrated its astronauts return from the moon, and yes the government had ordered a plaque to celebrate their adventure, but only because the "space programme" constituted the best mighty fiction that anyone on the island could recall. Superficially, the plaque celebrated the astronauts' return; at a deeper level, it celebrated their mastery at the traditional Rosarian skill of "almost getting away with it".

The home of conspiracies

Two students extended this idea in a remarkable way. They suggested that, far from simply being a way of passing the time, the concept of the mighty fiction might have had a solid foundation in history. They suggested that the position of the island, and the presence of hardy but over-imagina-

tive natives, might have made it an ideal trading post for information, from the Roman Empire onward. They pointed out how the island stood on the fringes of many widespread historical events, and would have offered an ideal haven for deserters, rebels, and plotters. They pointed out that the Sexton Blake story we had used as our starting point implicitly suggested that the island operated like this. They argued that, when thinking about the island in modern times, we should use something like the atmosphere of shifting intrigue that prevails in the movie *Casablanca* as a template.

They suggested that perhaps the scientists in *Sexton Blake and the Time-Killer* had not chosen this island by chance. Perhaps other renegade scientists had used it, such as followers of Nikola Tesla, and perhaps the concept of the mighty fiction also served as a cover for genuine conspiracies and 'secret science'.

This added another layer to the story of the island that, sadly, we never had the time or resources to explore as fully as we would have liked. Nonetheless, it contributed considerable extra depth to the island's official history.

The Tripartite Church

One way in which this idea assisted us concerned the nature of worship on the island. All recorded cultures have had their development affected and constrained historically by the superstitious or religious beliefs of their members, and the culture of Rosario could not have proved an exception.

We needed to know whether the Rosarians had churches, temples or mosques when we came to build the 3D world. We needed to know what gods they worshipped when we listed their festivals and holidays. Did people celebrate Christmas on Rosario? Or Passover? Or Eid? While, on the one hand we wanted to know these things, on the other hand we did not want the project to collapse because the online world had become the target of an offended religious group who had access to more resources than we did.

We therefore took the idea of the island as a nexus of regional conspiracies and asked what happened to the Gnostic gospels once the early Christian Church had outlawed them. We knew that the Church had outlawed them in 325AD, at the First Conference of Nicaea. We knew that Gnostics had buried some of them at Nag Hammadi and that locals had uncovered them in the 1940s (Pagels, 1979). Others, it made sense to say, might have landed by boat on a small island halfway between Europe and Africa, carried by some fleeing Gnostic believers.

From this starting point the Tripartite Church (should it exist) began, always remaining a shadowy, unacknowledged presence on the island: informing the islanders' behaviour without ever admitting its existence. We constructed a belief system for it that drew from the translations of several of the recovered Gnostic gospels, making it a religion that lived on the spaces between the major real-world religions. This enabled us to include religion within our narrative, but in a counter-factual way that neither mocked nor pilloried existing religions.

Technical Limitations & History

During the period in which we documented the foundations of Rosarian history, another group of students taught themselves how to modify existing SCOL worlds to meet our needs. They conducted experiments on generating avatars, on creating buildings, and linking modules together to form larger worlds.

Much of the developing narrative grew organically from its own logical roots. Three

ideas, once put together, formed a fourth, and so on. Sometimes, however, the technical limitations of the SCOL engine imposed themselves on the story. Large spaces seemed problematic for the SCOL engine. The group exploring the technical aspects of world-building became convinced that we could best create the first version of the online world by linking small 3D modules together using teleportation gates to create the effect of a large world. When a user touched one of these gates the engine would transport them to the equivalent location in another space. Travelling north, for example, the gate at the north end of Module A would transport the user to the south end of Module B, from where they could continue walking north.

We had to decide what these gates would look like. If they literally looked like gates then this would mean that the city would have the form of a series of small, walled chambers, which did not fit with the results of our historical research. We canvassed suggestions, and the solution that we eventually chose surprised everyone, as it also solved a number of other issues as well as giving us an unexpected genesis story.

We had already decided that one of the mountains on the island housed a not-quite-extinct volcano. A student proposed that this had erupted in the Middle Ages, leaving the island covered in impenetrable fog for nine weeks, during which most of the population had died, from hunger, from getting lost, or from falling into the sea. At the end of this, when the fog had dispersed, the island had effectively started again. However, because the idea of mighty fictions had become dominant in their culture, they had embellished this, and it had subsequently become a demarcation line in the island's history: a beginning from which the modern Rosario arose under the tutelage of the current monarch, Princess Ilana.

Since then the island had experienced several minor eruptions of the gas: not enough to cause damage but enough to embellish the legends still further. The gates that we needed for technical reasons existed in the narrative because a scientist in the early twentieth century had claimed that they could detect and dispel any further gas attacks. Whether they actually worked or not, nobody knew, but since they either constituted an important and impressive protection, or an even more impressive mighty fiction than the space programme, nobody ever suggested removing them.

At each point the students working on Rosario's history attempted to build any technical limitations into the overall narrative, and to find ways to include them so that they added to the feeling of consistency and credibility.

Culture and Media

Because we needed to interest the film and television students in the project, and in subsequent years students from other departments entirely, we also attempted to build cultural artefacts into our history. The Fog gave us a clear break-point between the old prehistorical Rosario for which only patchy recorded evidence existed, and the modern island which Rosarians had documented since the time of Ilana.

Students drew up timelines of important cultural events in the island's history, carefully tying them into the cultural histories of Europe and Africa. They included mentions of famous Rosarian works of art, deliberately described in enough detail to make it possible for students to make (or remake) them in the future. During the life of the project, students provided us with examples of paintings, photographs, poetry and music.

Some film students also proposed an iconic silent movie, created by a small and internationally ignored silent-film industry on the island. Like the original eight hour version of *Greed* by Erich von Stroheim, this movie had disappeared, although fragments remain. This idea fuelled a number of lively discussions. However, the possibility of actually creating these fragments never interested any film students enough for them to stage it.

Time on Rosario

Part of the process of this pseudo-historical research involved looking out for aspects of the real world that we might incorporate into the Rosarian story. One group of students seized upon Swatch Internet Time as having advantages for our narrative. Nicholas Negroponte had introduced the idea of Swatch Internet Time in 1998, at which point he said: "Cyberspace has no seasons. The virtual world is absent of day and night... Internet Time is not geopolitical, it is global... For many people real time will be Internet Time".

Swatch Internet Time had a meridian based in Basle, at the Swatch headquarters. It had no time zones, and divided the day into 1000 "beats". At the time we conducted our research, a number of programmers had produced small programmes and plugins that showed Internet Time on the computer screen. The role-playing game *Phantasy Star Online* had used it since its launch in 2000 and in March 2001, Ericsson had released the T20e, a mobile phone with the option of displaying Internet Time. The question arose: should Rosario use Internet Time?

The idea seemed good in that it might provide a talking point when we launched the world. It also served to differentiate Rosario from the wider world. Not everyone agreed. Some felt strongly that the idea of Internet Time itself lacked any merit. In the words of one student, "it has just been invented to make money. If a group want to meet on the internet at the same time without being confused they can just use the UTC time".

Having achieved a consensus, the issue still refused to go away. Another student, keen to produce a clock programme, researched and found the Rational Calendar. This differed from Swatch Internet Time in that it had a genuine history, a genuine purpose, and seemed to offer an interesting solution that came to nothing due to superstition and organised religion (Waugh, 1999).

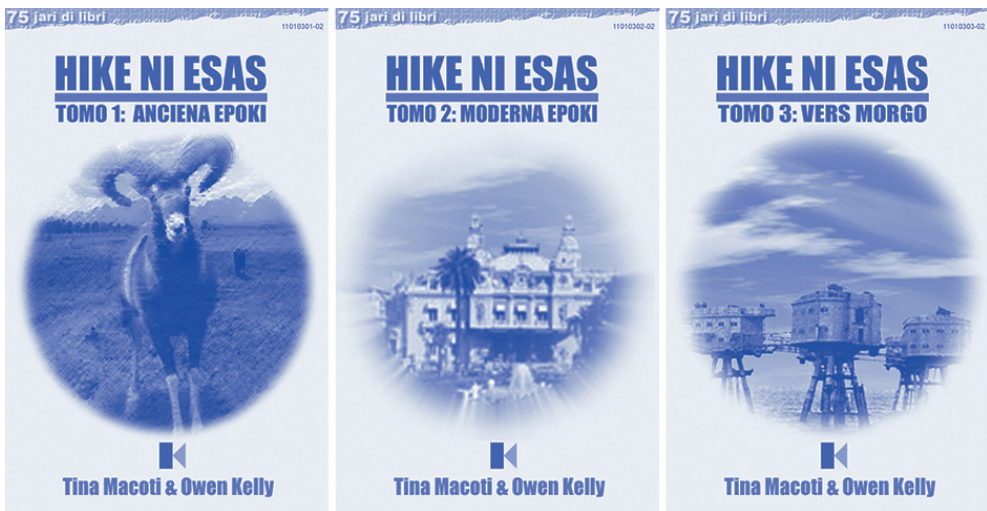
We accepted his proposal and agreed that Rosario had indeed adopted the Rational Calendar at the point when other countries had had the chance. This enabled two students to devote some time to producing a small calendar application that converted the computer's clock time into the time and date in Rosario.

It also served to give us the island's end of year festival.

Questions of language

We conducted the research using primarily English language sources, and it wrote and published it in English. However, as evidenced above, we needed to have "native language" terms for important events and ideas. As work progressed on the 3D world it became clear that we needed a consistent language for signage too.

Initially some staff and students suggested that we could muddle through by using Italian and sprinkling some Spanish or Greek words into the mix. Several short experiments showed that this would not work; or rather, it would only work if we went to the trouble of compiling a dictionary of Rosario showing how it differed from Italian, which Spanish words were used, and how



Three eBooks providing a cultural and political history of Rosario

they were treated grammatically. Without this, no two people could complete even the simplest task of writing signs for shops or text for advertising hoardings without introducing inconsistencies that rapidly revealed the truth: the designers had made the language up as they went along.

We then tried Esperanto, on the grounds that we could use it consistently and yet it would appear foreign to anyone entering the world. We faced two major problems. Firstly, Esperanto does not resemble any Mediterranean language. It looks like the creation of a Hungarian speaker, and indeed its creator, LL Zamenhof, did come from Bialystok, then part of the Russian Empire. Secondly, and possibly as a consequence of the previous point, Esperanto uses a number of accented letters, including one letter that Zamenhof invented and which does not exist in any normal typeface or on any normal keyboard.

We struggled with this for some time, but changed track when a reading of the history of Esperanto led us to the artificial language Ido, created in 1906, by a group of etymologists who recognised the benefits of a "universal auxiliary language" but regarded Esperanto as suffering severe deficiencies. Ido has its basis in Latin, it has no accents, and it has an even simpler structure than Esperanto. More importantly, from our perspective: a sign or advertisement written in Ido looks as though it belongs on the streets of a Mediterranean country.

We adopted Ido slightly by adding a couple of arbitrary rules, and wrote it into the history. The genesis of the language has a murky background involving allegations of conspiracy and double-dealing, and we used this to suggest that much of the underlying structure originally came from Rosarians, and that

subsequently the Rosarians had, in turn, used the carefully formulated rules of Ido to formalise their own grammar as part of a series of educational reforms.

The genesis of Marinetta

During this period our attention switched back and forth between developing the narrative of Rosarian history, and the technicalities of developing the online world. As a preliminary version of the world neared completion, and the web site team proclaimed it ready to launch, it became clear to us that others had already claimed all the usable URLs for Rosario. We dismissed the idea of obtaining a url like rosario-the-online-world.com because we felt that we would then start with an unnecessary disadvantage. We decided that we needed a short memorable URL that would not cause confusion.

We had already named the main village, the capital city, of the island Marinetta, for reasons that we had explained in the history. It seemed quite usual to name major projects after cities rather than countries. We therefore decided to make the official name of the project Marinetta Ombro (which translates as *The Shadow of Marinetta*), under the Marinetta Ombro project committee, led by Owen Kelly and Camilla Lindeberg from Arcada, and Mambo Milosz and Courtney Mojo from a committee formed by the Rosarian Government.

The web site declared that:

The current online world was inspired by the determination of Courtney Mojo, who provided a solution for the problems we were facing when she found inspiration in the writings of Piotr Miosz.

Describing the new phase she wrote that:

We will now attempt something altogether bolder. Some of you may be familiar with the work of Piotr Milosz at La Kolegio Ilana into mental mapping and psychic cartography. Twenty five years or so ago he asked Rosarians detailed questions concerning their feelings about the island. From this he produced a number of schematic diagrams, and the beginnings of a series of actual maps, showing "the psychic shape of the republic". By this means he constructed an actual picture of the island as its inhabitants imagine it.

Many things on this mental map are bigger than in real life and closer together; many things are smaller and farther apart; some things are missing altogether. This, he believed, is the Rosario that its citizens inhabit mentally, and this is what we will model. Marinetta 3.0 will be nothing less than La Mentala Rosario, as Piotr Milosz dreamed it - a vital first step towards making the shadow solid.

The map that Piotr Milosz produced has several surprising features. Most Rosarians still regard La Kin Landi, the ancient original kingdoms, as important, and see the regions of Rosario as having five distinct characteristics. We will therefore follow this in building la Mentala Rosario. The relationships between the regions are not as they are on the real map, but rather they form an island in the shape of our dreams. This we will follow too.

People hanker for the simpler days that their great-grandparents told them stories about, for the days when the port was a tiny fishing village, and so this is how it shall be in in our imagined world.

Using this as a starting point we abandoned our previous ideas of modelling Mari-
netta, the capital of Rosario, and expanded our vision to include the possi-
bility of modelling a symbolic form of the entire island; something that
would function diagrammatically, according to Charles Sanders Peirce's
specific understanding of the term. (I discuss Peirce's methods of diagram-
matic reasoning in more detail in Chapter 13.)

7.3. Observations

The project generated a lot of questions, and created a lot of theoretical
debate that would otherwise simply not have happened. It served to extend
the range of questions that arose within concept design courses, and to
show students both the range of depth of research necessary to conclude
a project convincingly, and the kind of strategies that we might adopt. It
also resulted in both staff and students making unexpected discoveries and
using these to spark ideas. In this sense we could claim the project as a suc-
cess even before the launch of the 3D world.

The question of time on Rosario offers one example of a train of thought turn-
ing into genuine research that led to new knowledge with a practical out-
come. It resulted in students engaging in a much more thorough analysis
of Negroponte's ideas, and debate about their lack of utility, than would
otherwise have occurred since, for them, the debate had immediate practi-
cal consequences. The subsequent discovery of Rational Time by a student
who refused to give up on his desire to program a clock application sparked
further heated debate while also opening up a number of useful narrative
possibilities.

This level of theoretical debate did not happen as a matter of course in our depart-
ment at Arcada, and it both surprised us and served to validate the project
and our approach to constructing it.

7.4. Outcomes

This project formed the basis of the first student thesis to emerge from the
project. Niki Weckström documented the methodology used to insert the
history of Rosario into the "real" history of Europe, some of which I have
outlined above.

We wrote up a version of the complete history of Rosario in a further set of three
eBooks which we published on the web. In doing this, we made explicit
our commitment to making all the documentation of the project a part of
the project itself. We had a number of reasons for insisting on a self-docu-
menting project. Most importantly we feared that material would get lost as
students moved on, and we felt that the best way to prevent that involved
finding ways of keeping all the material in view at all times. The eBooks thus
formed a key part of our strategy, because by turning the project documen-
tation into artefacts within the world, we enabled students to focus on them
as creative projects.

CHAPTER 8: ENTERING SECOND LIFE

(70)

For a series of technical reasons, the details of which lie outside the scope of this dissertation, we decided to abandon using the SCOL engine before launching any public version of Rosario. After a period of seeking alternatives and experimenting with 3D Game Studio, a German game engine, we decided to build Rosario in Second Life. In October 2004, we purchased premium accounts in order to familiarise ourselves with the world, and later, when we completed the exploratory research described below, we purchased a private island. In the beginning this island included four contiguous "sims", which we soon expanded to a three by three grid. (Linden Labs named their core unit of "virtual land" a "sim". Each sim measures 64 imaginary metres square.)

Our decision to house the Marinetta Ombro project in Second Life created a number of important opportunities, while also creating unexpected problems. We immediately gained a small, growing and lively community of peers: people who had also decided to commit their time to exploring the learning possibilities inherent in a social online world. We also gained an even larger number of "residents" (as Linden Labs called users of Second Life), who participated in the world for their own purposes, with no reason to either embrace, reject, or even notice our arrival.

We did not leap straight into Second Life. Instead we began a short and cautious period of exploration as most people do when they first enter Second Life. We wandered around the world, engaging in encounters with whoever we met. I bought a small plot of land in order to go through the process without reference to Arcada. I needed to find out whether Arcada would have legitimate reasons not to involve itself before I officially involved the institution. It

quickly became clear that various student and staff members had very different initial experiences, and that these formative experiences had led them in different directions. Some people formed attachments early on while others reported that they could find nothing and nobody of any interest.

We therefore decided to map out the world in a consistent manner. We determined a set of research questions that we hoped would enable us to form a coherent set of opinions about whether or not we could usefully use Second Life to host the Marinetta Ombro project, and what changes, if any, we would need to make in order to come to terms with already existing norms and cultures. We did this before committing ourselves to purchasing any "land" there.

8.1. Research Question

We felt that we needed to understand a range of issues and drew up a list of research questions:

1. What kind of place does Second Life appear to model? How would we describe it to someone who had never seen it?
2. What observable uses do make people make of Second Life? Why do they choose to participate?
3. How do residents find out about other residents and activities?
4. How do residents form groups?
5. What relationship could we realistically have with (and to) other residents?
6. What relationship should the island of Rosario have to the rest of Second Life?

We formulated this list as a means to clarify our thinking.

When we had attempted to build stand-alone worlds using SCOL and 3D Game Studio we had clearly stated intentions. We intended to model a small Mediterranean island, and to invite users to visit it. The makers of *World of Warcraft*, launched in 2001, intended to model a world loosely based on Tolkeinesque fantasy. The creators of *Eve Online*, launched in 2003, intended to model a universe loosely based on the space exploration and combat themes found in *Star Trek* and *Star Wars*. On the other hand Second Life promoted itself with the slogan "Your world. Your imagination". We wanted to clarify what this meant in practice, in terms of both the structure of the world and the activities that its users actually engaged in.

8.2. Description of Activity

Teams of students took one of the research questions and spent a series of sessions in Second Life. They observed the following procedure:

1. Each session lasted between two and four hours.
2. During each session they took screenshots.
3. After each session they made written notes.

After each set of sessions we held group meetings in which the teams shared information. From these we began to build diagrammatic representations of our findings.

8.3. Observations

This project raised a series of important and in many ways unexpected questions.

What does Second Life model?

Second Life differs from other online worlds in that it does not strive to model one specific scenario or setting. Instead it provides users with a customisable avatar, access to "virtual land" and a toolbox containing everything that they need to make objects ranging from clothes to buildings. For our purposes the ways that Linden Labs chose to implement this open approach had several important consequences.

Firstly users can create unlimited numbers of free objects using a very simple building process, although creating aesthetically pleasing objects can take considerable time and patience. The user's toolbox has a graphical interface and includes modelling tools as well as a scripting language that can bring objects to life. To build an object the user opens the toolbox, chooses a primitive shape, drags it into the world, and then applies tools to bend, shape and twist it before applying one or more textures. Importantly this process costs nothing and Linden Labs imposes no limits on how often and how many objects users can create. An area of land may only contain a prescribed number of 'primitives', but an avatar's inventory may contain an unlimited amount.

Secondly, unlike *World of Warcraft*, and similar games, users cannot die or receive injuries inside Second Life. Falling from a high building or mountain triggers a cartoon-like 'splat'-like animation, after which the avatar acts normally. Scripted weapons can cause an avatar to shift position - to get knocked backwards, for example - but they cannot harm or damage the avatar.

Thirdly, avatars do not express appetites like hunger and thirst. They do not tire or need to rest or sleep. (In contrast, all of these occur in online role playing games such as *World of Warcraft*.)

As a result of these design choices users can regard all activities in the world as discretionary. They have nothing that they have to have achieved previously in order to accomplish something. Second Life offers endless free building materials that avatars can (almost literally) pluck out of thin air. Avatars have no physical needs or bodily appetites. They do not age, suffer injury or die. Linden Labs imposes no laws on them, except for very general terms of service such as one might find attached to any social space online.

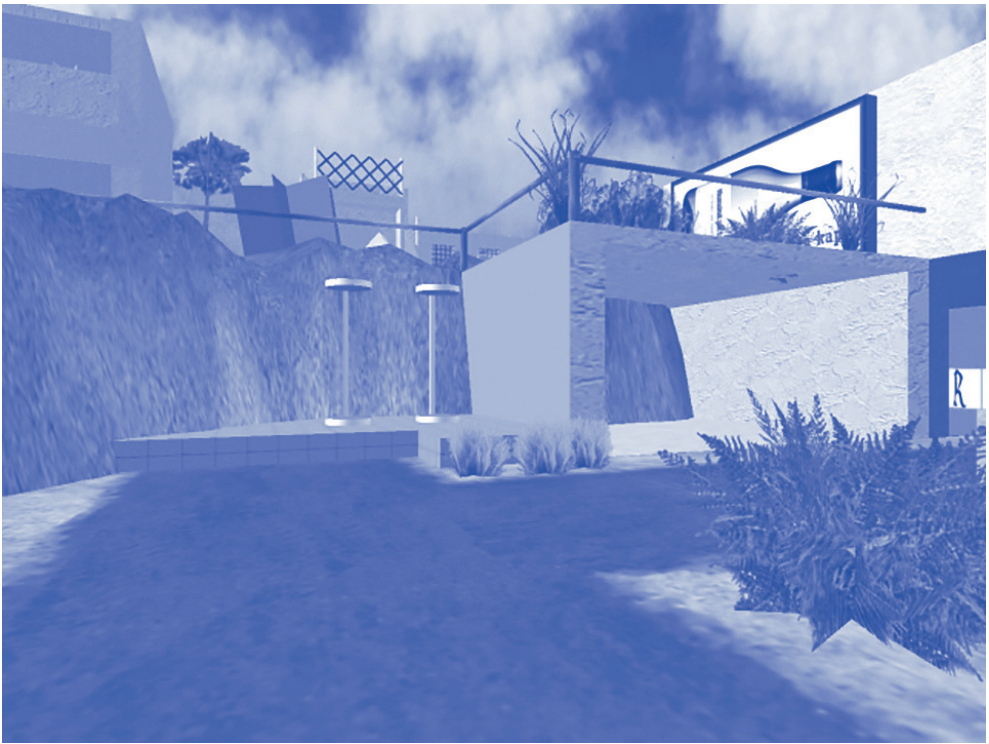
We concluded that Second Life does not model any version of life as we know it. Rather, intentionally or not, it models an unspecified version of heaven.

What uses do residents make of Second Life?

We observed that residents tended to organise around three overlapping kinds of activity that we described as showing off, socialising and creating.

The first group tended to use Second Life to play what one student described as "an adult version of Barbie and Ken". They spent time and money dressing their avatars with the latest fashions, bought from the in-world designers and malls they had become familiar with. They often purchased "land" and then bought a house (or castle, or whatever form pleased them) before spending time making themselves an elaborate personalised space which they might model and remodel at frequent intervals.

The second group used Second Life as a traditional internet chat room with some



Inside Marinetta

important additions. The communication channels in chatrooms suffer from being attenuated: users adopt evocative nicknames or handles, and then type text interspersed with emoticons. In Second Life the ability to dress up an avatar added a richer dimension of self-presentation to the mix. Users could shape and dress themselves as anything that they, or another resident, could imagine. They could seek out people who also wanted to look like cowboys, Egyptians, fairies, goths, steampunks, or wild animals; and then chat while making the kind of comments about others avatars that teenagers might make at parties. Social venues provided arenas which permitted a virtual version of the social competitiveness that many people enjoy.

The third group used Second Life as a programmable Lego set, and spent their time creating virtual model railroad sets of their own design. This group played a vital role in the development of the social world, because this group provided much of the clothing, furniture, gadgets, vehicles and weapons that the others wanted. Some members of this group sold their creations and began to earn some, or even all, of their real income from inside Second Life. The lack of any global media in Second Life meant that they relied upon word of mouth to increase their business.

This, in turn, led to the creation of a fourth group of users: those whose interest lay mainly in trying to make money within the world. They acted as agents and organisers, setting up large malls and doing everything they could to increase traffic. Designers and builders paid to set up shops in the malls because their interest usually lay in the process of building and not in the subsequent marketing activities. The lack of planning regulations meant that people who purchased land from Linden Labs could have no idea what

would turn up next to them. They could log in to find their exquisite split-level condo and pool suddenly next door to an amateurishly built space station, or worse. The entrepreneurial group therefore began to buy land from Linden Labs and rent it out with their own planning rules enforced. Thus users could, for example, rent space on an island that the owner had guaranteed would have a steampunk theme, with specific building and social rules tightly enforced.

How does news travel in Second Life?

The only certain way to find out about discretionary activities involved interacting with other avatars; either by exchanging information with them or by reading their profiles and seeing what places and events they had in their recommendations.

This had three primary effects.

1. Firstly the gathering and exchanging of information became an important and time-consuming activity, especially for new users.
2. Secondly, users tended to begin by exploring, but soon settled into a regular pattern based on their initial successful contacts.
3. Thirdly, these ad hoc groups tended to solidify into longer-term clans. In other words, new users would start by looking for something to do; find a loosely knit group, based at a particular "place" in the world; and then attach themselves to this group, thus playing their part in helping it solidify.

How should we view our relationship with other residents?

We regarded the fact that users seemed prepared to spend a lot of time and (real) money dressing up, and adding accessories, ranging from surfboards to aircraft, to their virtual lives as a perfect fit for our project.

Our students spent much of their time at Arcada learning to understand client briefs, to develop concepts from them, to create prototypes, and to work with the client to bring the final product to completion. Their tools included applications such as Adobe Photoshop and Illustrator, and 3D modelling software, as well as scripting languages from HTML to JavaScript. Most creators in Second Life used Photoshop and Illustrator as integral parts of their workflow; and many aspects of Linden Scripting Language bore a strong resemblance to JavaScript. Every avatar in Second Life could potentially act as a client for our students, since every avatar wanted to purchase or obtain novelty in one form or another.

Most virtual goods in Second Life came in two flavours: free or paid for. Linden Labs provided basic free clothing, and some furniture and whimsical accessories such as campfires and lanterns. Other designers provided free goods as samples, or as a way of encouraging loyalty. We decided that Marinetta would contain shops offering goods that the students created, and that we would give these away free since we wished to encourage interaction, not to derive an income from the world. Every resident of the world constituted a potential customer, a potential client. They formed a natural resource within Second Life and we wanted to find ways of including them in the students' learning experiences.

What do we need to understand before we commit ourselves to placing Rosario in Second Life?

When we first entered Second Life, in 2005, it had very few global infrastructures. It had an official currency, the Linden dollar, which users could purchase with a credit card and exchanged back into real currency using PayPal. However, it had no planning regulations, no in-world media, and no dominant communication channels. Together these factors exercised a great influence on the way users acted inside Second Life.

8.4. Outcomes

We arrived at these observations from our initial explorations. We undertook these explorations not as anthropologists, or academic observers, but because we wanted to make sure we understood the nature of the terrain to which we had committed ourselves. We wanted to make certain that we understood all the "house rules", not as Linden Labs outlined them on their web site and in the Terms of Service, but as people actually experienced and expanded them inside the social world.

After this initial research, we decided to purchase a private island because we realised from our private explorations and experiments that neighbourhoods on the mainland changed quickly and without any sense of consistency. Initially, as noted above, we purchased four sims which we later expanded to nine to allow the complete island to be modelled.

We also realised, after our research, that we would have to find ways of complying with existing norms and cultures, and that we needed to explore these in more detail.

CHAPTER 9: CREATIVE INTERFERENCE

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Within a short time of beginning to build the island in Second Life we decided to disallow flying and teleporting on Rosario. Linden Labs' decision to build a world in which users can teleport directly from anywhere on the universal map to anywhere else, or fly from one place to another where proximity renders teleporting unnecessary, effectively abolishes all experience of distance. This design decision limited the possibility of developing the equivalent of truck-stops and roadside diners on long highways: places that one might stumble across by accident while travelling.

One student described Second Life as "not like a world at all in many ways". She explained that

Everywhere is one jump from everywhere else which feels completely artificial and computer-like. Going somewhere is more like opening a file on a desktop than travelling. You just look at your desktop and choose any file you want to open, click on it, and there it is. You don't have to open a file about Sweden before you can get to a file about Denmark. But that is what you do when you travel. You have to go through Sweden or fly over it to reach Denmark, and it takes longer to get to Copenhagen than Stockholm. It doesn't take longer to get anywhere in Second Life because it is all just on a computer somewhere and you can open any place you want to go to.

We wished to reinstate this concept of distance. We wished to make the island explorable, and to make the business of exploring the island rewarding, and so it made no sense to us to turn it into a set of hotspots whose layout did not matter.



The Rosarian money, designed by a group of students

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We realised that people would find the process of walking all over the island time-consuming and often dull (since the size of Rosario meant that adding interesting features every couple of steps would take several years, and might never get finished). We therefore programmed *la grizonidi*, a system of teleporting between nine designated stops on Rosario using Linden Scripting Language. (As noted elsewhere, LSL has some similarities to JavaScript and, unlike SCOL, most of our students felt comfortable with it, and rapidly gained competence in it.)

La grizonidi enabled visitors to move between one place and another speedily, while still requiring them to experience various aspects of the island. We situated each *grizonido* stop a short distance from the place it served. The two stops for the town of Marinetta, for example, stood just outside the town and required the user to walk into the town from either the beach or from the long road that crossed the island.

To add interest and variety we also constructed a coastal highway around the island, with a road going over the mountains from one side to another. We built a shop that both sold and gave away working roller-skates which doubled or tripled the speed with which anyone wearing them could move. These became Rosario's preferred method of long-distance transport, and remained so for the entire life of the project.

9.1. Research Question

We needed to test our belief that switching off teleporting would have effects on visitors' behaviour, and that this in turn would impact on their

feelings. We therefore created a short research experiment to investigate this topic. We asked:

1. How do you experience the differences between teleporting from A to B in other areas of Second Life, and skating between A and B in Rosario?
 2. What are the advantages and / or disadvantages of "enforced distance"?
- We also asked students to talk with any visitors to the island, to ask them this question, and to note down their answers.

9.2. *Description of Activity*

To our surprise the research questions quickly proved irrelevant. The students answered them and then moved onto exploring a new phenomenon they had inadvertently triggered. (I have listed the students' answers in the Outcomes section below.)

From the very beginning of the project we had had in mind an idea that we referred to as creative interference, but initially we had no idea how to bring it about. We intended this to counteract what we perceived as a major shortcoming in most of the educational worlds we had begun to see: namely that the designers had created them as educational worlds. In an early statement of intention we said:

Almost all the online environments that we have seen suffer from the fact that they are designed for one single purpose. Some are designed for distance learning; others are designed for entertainment such as role-playing games. The real world does not work like that. People walk the same streets and sit on the same train for very different reasons.

Our intention is to create such a multi-purposed world: a world in which learning is one of the many possible activities that take place. We believe that this will provide a much richer and more appealing environment that allows for spontaneous interaction between the inhabitants.

(Kelly & Lindeberg, 2004b)

We found that the possibility of creative interference (and, indeed, the almost insuperable difficulty of avoiding it) offered one of the main advantages of moving the Marinetta Ombro project to Second Life. The world teemed with activity, with avatars whose owners might live almost anywhere in the real world. Within the first few months we met avatars claiming to hail from Africa, China, and India as well as America, Australasia and Europe. We could not know which of these told us the truth and which lied, and nor could we easily find out their motivations for entering the world and telling us these true or false stories. Of one thing we could feel certain, though: none of them had entered the world to participate in an educational experiment conducted by a university of applied science in Helsinki. They had entered for their own inscrutable reasons and they had no reason whatsoever to show any interest in us at all. They therefore displayed most of the important characteristics of potential customers in the real world.

If we managed to engage some of them then Rosario would

therefore move from being centrally controlled to an unplanned amalgam of inter-related interests: work-related, educational and purely

for entertainment. Importantly, all of these will impact on each other, causing creative interference and increasing the richness of the total experience.

(Kelly & Lindeberg, 2003b)

We recognised from the outset that many educators spent large amounts of time and energy trying to develop ways to shield their spaces from unwanted other users. We felt that they had missed the point. For us, the large body of users, dedicated only to having fun and experiencing novelty, formed the core resource that Second Life offered us. To attempt to hide from them would mean succumbing to timidity and limiting the experiment to the banal and already-known.

The decision to ask our students to engage actively with passing visitors to find out their opinions about enforced distance led to an increase in people visiting the island. This snowballed and although many visitors only came once and left, a few stayed and influenced our work in unexpected ways for better or worse.

Kindly strangers

Our decision to embrace the chaos of Second Life, rather than to try to create a secluded ordered corner of our own, led to a number of interesting educational opportunities.

Several years passed before anyone wrote and published any books about designing and programming in Second Life. Our students needed to learn these skills as soon as we began building Rosario. The only material available at the time revolved around Linden Labs' wiki, and a growing number of satellite blog posts and video tutorials. Almost all of the writers published these under the names of their avatars, not their real names. We could therefore have no idea of the status or credentials of the authors who, for all we knew, might work as senior programmers in large corporations or study in the first year of high school.

We therefore found ourselves in a situation where we could only judge the utility of an article or tutorial by its results. If someone had programmed a complex effect that worked as advertised, then we had to assume that they had the skills they claimed to have. If it failed to work as advertised then we had to work out whether the fault lay with us or with them. This, in turn, meant that we could have no way of knowing in advance whether a source of advice would turn out worth pursuing or not.

This conundrum became clearest when a small group of students found a kindly stranger who declared herself willing to teach them advanced building techniques. The students' specific assignment involved learning how to build houses and furniture using the least amount of "prims" possible. (Prims formed the basic building blocks of all objects in Second Life. Every region, or plot of land, had a maximum number of prims it would support. Builders therefore needed to find ways of reducing the amount of prims in everything they built, and developed many techniques for doing this.)

One of the essential starting points for such a task involved exploring Second Life to see what other people had already done, in order to gain some idea of where the theoretical limits lay. When they had found an interesting object, students would often try to contact the builder to ask questions about the techniques used. Some people would answer, some would not. Some answers would appear curt and unhelpful; others would offer explanations

of various levels of depth. In this case, the builder offered to run a set of tutorial sessions to teach the students the techniques step-by-step.

Thus a stranger, who had a female avatar and claimed it represented her real-life gender, but would say nothing about her nationality or real-world status, came to teach a group of students advanced building techniques over several two-hour sessions, and ended up doing most of the teaching on the course. (I should, perhaps, add that the course took the form of a set of workshops in which we expected students to explore given topics under guidance. The Kindly Stranger brought valuable additional material to the course. She did not replace any scheduled teaching.)

The masked newsagents

In a similar vein, three avatars approached us offering to establish a news stand on Rosario: a set of displays that, when touched, would link to some of the growing number of web sites and online magazines devoted to aspects of Second Life. After some discussion, we accepted the offer and for two years had a kiosk in Marinetta where citizens and visitors could go for a one-stop overview of fan-based news and information. At no point in this did we ever find out (or attempt to find out) the real life identities of these avatars. From our perspective it simply did not matter. They made a positive contribution to the creative interference we sought to promote; they brought new insights to our students; and we could in any case remove them from the island, instantly and permanently, at any time that we deemed it necessary.

Furry Squatters

We did not succeed in applying this rule in every case. At one stage, when we briefly opened the island's building permissions for a specific project, a group of furies built a camp in a relatively disused area of the island. Furies formed a distinct faction in Second Life. They had avatars that resembled animals; usually cats or wolves or rabbits. They lived as their "animal selves" and had complex codes with external web sites dedicated to elucidating them. We negotiated with the group who arrived, and gave them permission to stay for a limited period.

While they stayed they continued building, and this caused a controversy among the Rosarian building team. On the one hand, they built imaginative shelters to a high standard and made efforts to ensure that they blended in with their surroundings. On the other hand, they clearly belonged to a faction that had many more members than the island of Rosario and, as their friends arrived to visit and then stayed to petition us to allow them to build too, staff and students began to worry that they would overwhelm the project, leaving us as the downtrodden minority in one corner of a furry paradise. One student pointed out that it seemed very similar to a real-life infestation of rabbits on a farm, which led to others suggesting that we should get rid of them before we got overwhelmed rather than attempt to remove them after they had become established.

Reluctantly, I agreed and we asked the furies to leave at the end of their agreed period. I remain uncertain whether this worked to our advantage or not. They left with regret but no hostility. They did leave a plaque marking where they had built the camp, and I insisted that we leave that there, which we did. The furies might indeed have overwhelmed us. Highly committed and very active, they visited the island more often, and for longer periods, than most of the

students. They held parties and brought numbers of friends over. I had suggested building them into the Rosarian narrative, and they had shown some interest in joining in with this. Others felt that this would stretch the elasticity of the project too far and place us in a similar position to the one we might have found ourselves in had we launched a world full of dungeons and dragons.

Since our team seemed scarcely large enough to carry out our existing plans I accepted this decision, although sad about the research opportunities we might lose. In the event, the disappearance of the furies became no more than one particularly interesting event on our journey. The island of Rosario and the town of Marinetta came to provide enough material to fill the content of a wide range of courses for almost five years. These included courses for our students; for the film and television students; for students from other departments; and for a large international project.

9.3. Observations

As noted above, this experiment served by accident to increase the amount of external visitors to the island. Some, as described, had benign and unexpected effects on the project. Others proved more problematic.

Within a month of beginning work on the island we decided to restrict the right to build on Rosario to a list of registered citizens. It had taken only a couple of days for a few people to find the island and start using it as a sandbox: a place where they could practice building and create habitats of their own. Once this process it started it rapidly grew, as users presumably told in-world friends of the new sandbox they had found. After a week large parts of the island had a covering of abandoned experiments and other litter. It also had a number of dwellings into which people had moved.

Once we observed this we tried to find ways in which we could include it within our plans. We had people arriving on the island wanting to use the space, so surely we could find a means to incorporate them within our narrative. We talked with any incoming avatars that we found in-world at the same time as us. Although some displayed genuine interest and offered to work with us, many displayed outright hostility. Some responded by moving from using empty areas of the island to deliberately building in and over the work the students had begun. After several attempts to find a solution, we declared the island had entered a building phase and prevented anyone except those in a named list from building there.

We made the elementary mistake of explaining this in advance to the island's squatters which resulted in someone dropping some self-replicating objects onto the island in an attempt to crash the servers running our sims. In our first month in Second Life, then, we came up against a range of unexpected issues, and found ourselves having to reassess our aims and redefine our goals in the light of the prevailing culture we found there.

9.4. Outcomes

The original research questions yielded the following answers

1. The effect of the enforced distances differs markedly depending upon whether you travel on your own or with a companion;

2. Travelling on your own makes the longer distances dull. If you have to do them twice for some reason then the second trip becomes very irritating:
3. If we plan on forcing people to skate across the island (which can take five "real" minutes) then we need to set up diversions: objects or events that travellers can take part in, watch or listen to;
4. Travelling with a companion makes it possible to turn the journey into a race, or to entertain each other by showing off your skating skills. (The skates had a set of built-in moves and stunts that one could practise and, with enough skill, combine into impressive routines.);
5. Visitors find not being able to fly irritating or interesting depending on what they want, and how they react to us. Those that stand and chat often ask where they can get the skates, get a pair when they realise that they cost nothing, and then come back to skate.

Beyond the benefit of gathering this information, the experiment strengthened our belief in proceeding through an open-ended, bottom-up strategy. If we had formulated our experiment tightly, and then insisted that students do not deviate from the intended purpose, then we would have received no more information than we had set out to find. We would have analysed a relatively trivial problem while missing out altogether on discovering a bigger and considerably more interesting one.

Our experiences with our unknown collaborators also caused us to look hard for other ways in which we could make residents' "natural" behaviours in Second Life work to our benefit, rather than against us. Because of what we had learned, we began to look in closer detail at how we might create situations in which students benefitted from engaging the pre-existing and "natural" desires of other residents.

NARRATIVE CLOTHING & ASSESSMENT

CHAPTER 10

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We had become aware that the learning outcomes of the Introduction to Photoshop course, which our first year students took, appeared to match closely the skills needed to make clothing in Second Life. Both seemed to require knowledge of, and practical capabilities in:

1. The whole range of Photoshop's selection tools;
2. Channels;
3. Saved selections and alpha channels;
4. Layers and layer masks;
5. Unusual file formats (.Targa in the case of Second Life).

We set out to translate this coincidence into a useful learning object.

10.1. Research Question

We told students to immerse themselves in Second Life for several days with the intention of bringing back answers to two questions.

1. What do avatars currently wear in Second Life? More specifically, can you discern any noticeable crazes, fashions or trends in Second Life?
2. What, in addition to what you already know, would you need to learn to make a set of this clothing?

10.2. Description of Activity

The students brought back images and reports of different styles they had observed and that they claimed constituted current trends. What some students claimed flatly contradicted what other students claimed, but they all had evidence to back up their statements, and so we accepted everything they said as true.

Reverse Engineering

We began by asking each student to pick one item of clothing from the images they had captured and make as close a copy as they could. To do this they needed to

1. load one of the pre-existing templates we had found into Photoshop;
2. use the template as the starting point for their own work;
3. save their finished work, and export it in the correct format;
4. load the exported file into Second Life;
5. try wearing it;
6. repeat the process until the clothing their avatar wore in Second Life closely resembled the item they had photographed originally.

Not all students managed this on their first attempt but all of them managed to complete the assignment within the given time.

Fashion Design

We then asked them to take a further step: to design their own clothing in the style they had cited as fashionable. We gave them explicit instructions. They had more or less cloned an existing item of clothing. They now had to analyse it and determine what made it desirable, and then make their own, recognisably different, version that they believed would prove even more desirable. While attempting this they had to keep in mind the avatars that wore the original clothes, the ones that they had copied, because these avatars, not the students themselves, needed to find the new designs more desirable.

In this way the students began designing for a potential market. Once they had produced a piece to an acceptable standard, and successfully attached it to their avatar, and once they believed that other residents would perceive their avatar as fashionable, we invited them to test this assumption by returning to the site where they had done their original research and asking the avatars they found there to comment on their clothing.

In order to produce acceptable clothing students had to move beyond mere imitation and start addressing the question of why the various groups in Second Life behaved as they did, and dressed like they did; and what roles their virtual clothing played in their social games. Many students noticed that residents of Second Life had constructed elaborate personae, which they expressed visually; and that they used these to tell a personal story. Because avatars did not have any means of exhibiting body language of any subtlety, clothing played a vital part in establishing an avatar's character, and thus the role it played in the group's ongoing narrative.

Only newbies wore the default clothing. Only relative newcomers wore the widely available free costumes. Most residents sought out specific places to obtain

clothing and other accessories, and developed loyalties to individual designers, or to familiar locations.

Many residents used clothing as a very specific expressive code. They changed their avatar's clothing to indicate their state of mind. Their avatar dressed one way if they wished to present themselves in-world as happy and another way if they wished to present themselves as angry or sad. Because emotions could not affect the avatar's posture or facial expressions, clothing became a heightened indicator in the ongoing story of "who I am" and "what I am like" and "what you should think about me".

In some cases this realisation led to a further round of fine-tuning, and in a couple of cases to a complete rethink. In the end all the students had items that had received positive feedback from other residents.

Mechanisms for selling goods in Second Life

By this point the village of Marinetta on the island of Rosario contained a number of shops that we used for various purposes, including the free distribution of the Skoop roller-skates that our students and others used to traverse the island. We had situated the shops close to one of la grizoni, and so we could easily create notecards that contained the address in a form that other residents could use to teleport to the right place on the island.

Purchasing anything in Second Life happened through pointing and clicking. One of the standard methods for putting this into practice involved creating dispensers which consisted, in essence, of an image of the available product that, once clicked, would transfer a copy of the item to the avatar's personal inventory. These could contain scripts (using LSL) that programmed them to then transfer an amount of Linden dollars from the avatar to the owner of the dispenser. Alternatively they could skip this step, effectively giving away the items for nothing.

I programmed a set of dispensers, one per student, and arranged them in a row of shops. I then added additional dispensers in case we needed them. I set the dispensers to give away their contents for no cost. I also set them to record how many items they had dispensed, and the names of the avatars that had taken the clothing.

Fashion Festival

We announced that the course would conclude with a shopping festival. Students had two weeks to undertake their final assignment, which involved

1. going back into Second Life;
2. checking their findings, and recalibrating them if necessary;
3. making the best clothes they could in the light of their revised information;
4. advertising them among the groups they had identified as potential customers; and then
5. selling them in the shops I had set up in Marinetta, in a 48 Hour shopping festival.

In this assignment students had to design for an existing market that they had identified. They had to tailor their ideas to the apparent requirements of this market, as they had understood it. This closely paralleled the designer-client relationship that our students would meet in the real marketplace, during praktik and

freelance work, and after graduation. The nature of the task prevented the students from merely "expressing themselves" and imposed an external discipline. At one level the exercise was technical, but at another level it was anthropological. To succeed the students needed to understand the technicalities involved in creating clothing using Photoshop. To succeed well they also needed to understand the narrative nature of Second Life, and the ways in which visual display stood in for much that gets conveyed with body language and posture in real life.

We showed the students how to use the dispensers; how to put their products into them and set them to give items away. We also gave them a date for the festival, and a set of notecards to distribute as advertisements. In addition, we made sure they all knew how to create their own notecards in case the groups they had contacted had their own rules or conventions and needed addressing in particular ways.

Students could have as many dispensers as they needed, provided that each dispenser held a unique item of clothing. So, if a student had created two shirts, one coat and a pair of boots, they could claim four dispensers. Most students had one or two dispensers, although some had three or four and one student required five. I added extra dispensers as necessary and, in the end, added one extra shop to the row.

The Assessment Procedure

The festival came and went. 167 residents visited the island during the festival. Most of them chose to take one or more items of free clothing. We published a set of figures that showed how many of each item had residents had taken, with time and date. We also made the names of the customers available to the students.

We now invited the students to assess themselves and each other. This assessment had three questions at its heart:

1. Are you satisfied with the amount of your clothing people chose to take?
2. What would you have needed to do to persuade more people to choose your clothes?
3. What grade do you think you deserve?

Students provided written feedback in the form of assessment notes. They first graded themselves, and wrote comments intended to justify their decision. They then wrote shorter notes on each of the other members of the course, commenting on their clothing and offering reasons why they had succeeded or failed in attracting customers.

Three students failed to attract any customers and we invited them to explain why they had not failed the assignment. One of them took us to the place in Second Life where she had conducted her research and pointed out that her problem lay, not in the design of her clothing, but in her inability to persuade the avatars who lived there to come to the festival. She correlated the list of avatars present in the region over forty eight hours with the list of avatars who attended the festival and successfully demonstrated that the lists contained no overlap whatsoever. She further argued that, within the constraints of the assignment, we could not reasonably have expected her to predict this. She had, it turned out, chosen an area of Gorean roleplaying, and although the res-



A shop in Marinetta

idents there did indeed like her bondage themed clothing, they had no interest in coming to Rosario to avail themselves of it. However, once she had gone through the complex rituals needed to request permission to give her clothing away in the Goreans' own area, her clothing proved very popular, and she went on to create more outside the assignment for her own interest. Without meaning to, she had chosen one of the more difficult sub-groups to work with, in that the Goreans possessed a very tightly defined set of elaborate rituals based closely on the narratives laid out in the much-criticised sequence of thirty three novels by John Norman. These depict a fantasy counter-Earth with a mix of ancient and modern technology and the sort of sadomasochistic plotlines that the British author Michael Moorcock has described as “stuff that works to objectify women and suggests women enjoy being beaten”.

For the Goreans clothing formed a key part of the collective fantasy that they had constructed, and this fantasy restricted their movement or, more accurately, their interest in moving around the larger spaces of Second Life. To complete her assignment the student had to move beyond understanding their clothing as an aesthetic and come to an understanding of the larger narrative into which the Goreans had woven their clothing.

In the end she passed the course, and received a grade of excellent. The other two students had no similar explanations and accepted that their clothing had not met the requirements of the market they had attempted to address. One of them repeated the exercise, by making a second set of clothing, advertising it and successfully giving it away. He passed. The other student failed the assignment.

10.3. Observations

When challenged, the students duly noticed a variety of fashions, which they described as constituting the latest trends. Interestingly different students noticed very different trends. We had asked them to include screenshots in their reports and these made clear that the disparity in their reports mirrored a set of very different second lives. It also became clear that some of these groups had no knowledge of (and no interest in) some of the other groups. Second Life, it appeared, housed many different "worlds", only some of which overlapped.

Some of these worlds had very specific reasons for existing, which ranged from a delight in steampunk and a resulting area in which buildings, dress and style of communication all reflected this, to the S&M devotees in the Gorean sub-culture with their strict hierarchies and love of discipline and submission.

10.4. Outcomes

This experiment demonstrated that we could harness the desires of the other residents in Second Life in productive ways. By treating them as a market, or as a set of parallel markets, we could provide goods that they themselves wanted in a way that led our students to work in a way directly comparable to the ways a lot of them would work after graduating. With this experiment we felt that we had finally crossed a threshold. We now had many of the same important features within Marinetta Ombro that the film and television students had with TV Borgå.

Very early in the project we had drawn up a list of calendar-based festivals in Rosario, in order to use these to provide deadlines and frameworks for student projects. One of these, Semano Semano, had a deliberately vague place in the calendar: we had left it as a floating Spring festival in order to make it usable for larger and more experimental projects that could take place in the final period of the academic year when many students do work practice and others require simulated work training.

In 2007, Helsinki hosted the finals of the Eurovision Song Contest, and Arcada applied to play a role in the media festivities. The television students produced a stream of non-stop broadcasts, some of which YLE, the Finnish Broadcasting Corporation, transmitted nationally. The others appeared live on Arcada's cable channel across Helsinki.

The multimedia students naturally wanted to participate too, and so we declared that in 2007 the Semano Semano festivals would occur in Second Life at exactly the same time as the Eurovision Song Contest occurred in Helsinki. A team of multimedia students from Arcada worked with four exchange students from ITT in Dublin. We decided that we would adopt the same working methods as the film and television students, and so all of the multimedia students ceased all other academic activity for three weeks and devoted themselves solely to developing this project.

11.1. Research Question

We established two related clusters of research questions.

1. What would a gigantic festival look like on Rosario? What events, facilities and equipment would such a festival need? Can we build such a festival in three weeks?
2. How would we attract crowds to a Semano Semano festival? Why would they come and why would they stay? Why would they spread the news to their friends?

11.2. Description of Activity

The students began by spending eighteen hours in Second Life in one continuous burst of activity.

They had decided, quite correctly, that different people from different parts of the world must participate in Second Life at different times of the Finnish day and night. They wanted to begin their research by mapping out this involvement. Several of them then repeated this experiment in order to check their initial findings.

Global Involvement in Second Life

During this period Linden Labs never published comprehensive figures for Second Life usage in a form that bore close analysis. They tended to publish headline figures whose actual significance remained elusive. They published impressive statistics for the total number of residents, and for the amount of new residents joining each month, but not for how long residents spent in the world, or how often they logged in.

Many observers suspected that Second Life suffered an enormous churn rate, with the majority of new residents joining, logging in once, and then never logging in again. Since basic accounts cost nothing, and took just a couple of minutes to set up, anybody with even a passing interest in Second Life would almost certainly do this.

People also suspected that many of the committed users had more than one avatar. Users would have several reasons to do this, and indeed we had several avatars ourselves. Users, like us, who owned islands, would need to do this to test the level of permissions. Some parts of the Second Life infrastructure had bugs and design flaws, and some aspects of the administrator's dashboard suffered from a confusing and counterintuitive interface. The business of setting permissions suffered in precisely this way, and one of the only guaranteed ways to test that the settings you had applied had the effect that you intended involved entering the island as a stranger. I had therefore created an avatar with no permissions to do anything on the island. I used him in order to see exactly what a passing stranger would see if they landed on Rosario. I also used him to explore Second Life when I wanted to travel through the world anonymously. When some students eventually got to recognise him as me, I created a third avatar that I told nobody about so that I could observe activities in Rosario from the outside, and could explore the rest of Second Life in peace.

To my certain knowledge some of the students who became highly enthusiastic about Second Life did the same. They had "respectable" avatars that they linked to the Marinetta Ombro project, and other "private" avatars that they used to attend in-world parties, clubs, orgies and more; and used to participate in the various in-world subcultures.

Because of this I suggested to the multimedia students that they should simply

ignore the overall population figures and concentrate on seeing how the usage varied over a twenty four hour cycle. They discovered that global involvement seemed to have a very uneven spread. Almost inevitably they found that the world had a lot of users during the times that North Americans regarded as evening and late night. However they also found sizeable clusters of users from Britain and Germany, from Korea and Japan, and from Australia. In addition they came across groups of Spanish speaking users spread across time zones.

They seemed to find a low-level of activity in the world in Spanish (whether from Spain or South America) or from South East Asia any time they looked. Crucially, they found no points during the twenty four hour cycle in which activity ceased. Individual venues and individual places seemed often to spring into life for only two to six hours per day, but it always seemed possible to find at least some clubs or islands in use at any time.

It became clear during subsequent explorations that many of these pockets of activity had no communication whatsoever with other groups. Second Life, in effect, housed not "one world" but many different worlds that opened and closed sequentially, at different times of day and night. Places that had appeared deserted or abandoned every time we had visited them turned out to spring into life and flourish while we slept.

Structure of the Festival

These observations served to define the nature of the festival. The students suggested that, since we only intended on doing this once and for a fixed period, we should do it with the same manic energy that the television students would put into their continuous broadcasts. They suggested that the festival should run continuously during the Eurovision Song Contest weekend. One of the Irish students then suggested that we should run a twelve day festival and once he had explained what he meant the structure of *Semano Semano* fell into place.

Second Life has an idiosyncratic feature that most of its users ignore, and which we had tried to find uses for. The sun and moon have a four hour cycle, consisting of three hours of daylight, a brief dusk, one hour of darkness, and a brief dawn. This means that the world has six in-world days for every real-life day. Since darkness presents no impediment to movement or vision both builders and users usually take no notice of this change in light.

We decided, whoever, that we would advertise the festival as taking place over twelve Rosarian days, and that we would structure it on that basis. We would organise a pattern of morning, afternoon, evening and night time activities. This would mean that different groups from different time zones would probably participate on different festival "days", but that each group would have the ability to participate in at least one full day's programming.

Programming the Events

The team sketched out a full range of activities for the twelve "days", and a schedule that would ensure that at least one team member acted as a host in Rosario at every point during the festival period.

Once the students had devised a draft programme they began gathering the objects that they needed to bring it to life. In many cases this meant designing and scripting new objects. In other cases it meant travelling Second Life to find objects that we could buy.

The final list of activities included:

1. a daily race around the island on specially scripted Segway machines;
2. treasure hunts;
3. a parachuting contest, with scripted launcher and target;
4. free clothing dispensers, giving away t-shirts, dresses and a traditional Rosarian costume;
5. a synchronized national dance in full Rosarian national costume;
6. a meeting area in which we continuously streamed Arcada's live cable broadcasts;
7. a club area that remained open throughout the festival.

Building the Site

Finally the student team completely rebuilt a large, hitherto undeveloped, area of the island and named it La Moyena Valo. They reshaped the valley, built stages, added a landing point, and embedded a variety of ambient sounds to provide a sense of atmosphere, even when the area lay empty.

Making Movies

The team decided that the whole idea needed a back-story of its own. We needed to have an answer to the question of why Rosario had any interest in the Eurovision Song Contest in the first place. They suggested that Rosario had tried to enter the contest but had suffered rejection at the hands of the organisers. The island would hold its own festival partly as an act of defiance and partly to draw attention to its effective ban.

In order to make this plausible they commissioned the creation of the Rosarian entry to the contest, sung (in Ido) by Marinetta's most famous pop star L'angelot. (In reality, Neil Thompson, an English musician who ran an independent record label in Brighton, and who had previously lectured the students on the benefits of using Creative Commons licences for artistic production, composed, sang and played the song.) Titled *Al Dek Manto* in the honour of Dek Manto, the great Rosarian writer, the song had an accompanying video in the form of a machinima movie filmed entirely inside Second Life, and then uploaded to YouTube. You can still find the song and video at <http://www.youtube.com/watch?v=18BzfsbVCJA>

To accompany all of this the students recorded a series of short documentary clips in which they tried to ask various people connected with the Eurovision Song Contest why Rosario had had no opportunity to submit an entry. They uploaded these as part of the country's campaign for recognition.

Second Life and Television

During the festival itself, the students recorded and edited videos from inside SL. These proved very useful for the television students running live television feeds for Arcada's cable channel, which broadcast 24 hours a day during the Eurovision week. The team provided them with quirky content that they could drop into gaps in the schedules, and re-use whenever they needed to.

They streamed non-stop television broadcasts live into La Moyena Valo, the festival valley in Rosario. They streamed video taken in the valley for broadcast on television in Helsinki, on the web, and over Finnish mobile phone networks.



Dance party at Semano Semano

Publicising and Hosting

While creating La Moyena Valo, the students had also kept up a schedule of exploration, scouting not only for useful items but also for areas where they might find potential attendees.

During the forty eight hours before the festival the student team worked hard visiting other areas in Second Life which they had identified as containing avatars whom they could probably interest in the event. They arranged with other landowners to leave notecard dispensers advertising the event and giving a clickable set of directions which would teleport any avatar to the specially created festival landing point. They approached writers for various Second Life blogs, explained the backstory and pointed them towards the videos on YouTube.

Once the festival began, the team ensured that visitors did not find an empty area when they arrived. One or two team members hosted the area at all times, and guided visitors to the clothes dispensers and the contests and games. They had developed some of the games specifically to provide one-person activity for avatars that arrived during a lull in attendance. Other games, like the parachuting and hang-gliding, worked best as small group games which the hosts would inaugurate whenever a group appeared.

11.3. Observations

During the twelve sessions of Semano Semano approximately 700 people participated in some sort of in-world activity. In terms of numbers attending events in Second Life at the time, this meant that it certainly counted as a

large and successful event. Many, more highly publicised, events attracted 100 people or less.

The numbers varied wildly from session to session; partly because we failed to appeal to as many American residents as we would have liked, and (judging from conversations we had) partly depending on what else occurred in Second Life at the same time. Activities such as Terra Z races and skydiving proved popular, though, every time people we hosted them.

The eleventh session took place the hour before the contest itself began, and filled up almost from the outset. Because nobody wanted to leave, it simply carried on throughout the three hour televised contest. During this unplanned five hour party there were never less than thirty people in La Moyena Valo, and we estimated that over 150 people were there for at least fifteen or twenty minutes.

The form of the project almost exactly mirrored the form of the television broadcasts, in that it required extreme effort over a short period of time, with a clearly defined end-point after which the team could celebrate. This stood in stark contrast to much of our other work, which we had developed slowly and methodically with no real end in mind. A shop, once opened, needed maintaining and supplying with new products. A club, once created, needed staffing and hosting. These requirements never diminished and, indeed, if a shop or a club proved successful, then they grew over time.

The Semano Semano project, on the other hand, tapped a different kind of energy and required a different kind of commitment. The students had risen to the challenge, but we wondered whether this might in part result from the fact that the project had always had a clear finishing line; that we had intended from the start that the twelfth "day" of the festival would act as a finale.

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11.4. *Outcomes*

Semano Semano became the largest project that we had ever organised in Second Life and it proved completely successful within its own terms. It achieved everything that we set out to do, and the numbers of people who attended the event far exceeded our expectations.

This had a completely unexpected effect. After the event, when we held a final debriefing meeting and celebration, everyone involved, both students and staff, felt that not only had we achieved what we set out to do, but that we might, for the moment, have exhausted the possibilities of Second Life as a learning framework. Someone raised the question "what can we do to top that?" and nobody could answer it.

This raised an important issue, because until this point every year that students got involved with the Marinetta Ombro project, we challenged them to find something to do there that would enlarge the culture of Rosario. We challenged them, in effect, to do better than the previous years' students. We knew why we believed this necessary: if a group of students ever felt that their predecessors had done all the pioneering work, and had carried out all the interesting tasks, and that their role simply involved maintaining the world and perhaps tinkering at the edges, then that group would approach the project as a chore and not as an adventure, and at that point the project would cease to act as the framework we wanted.

Semano Semano happened in May, at the end of the academic year, and so we left for vacation wondering whether the Marinetta Ombro project had run its course, or if it still had a future.

When we looked back at the Semano Semano project, at the beginning of the next academic year, we also looked at the wider context in which the Marinetta Ombro project had taken place. We looked at the students' professional needs and acknowledged that they had begun to change. Online worlds had ceased to seem important. Second Life had not become the "three dimensional web", as its founders had intended, and instead Facebook had begun to assert a near-monopoly over the suddenly popular "social web".

During its brief period in the spotlight, the television series *CSI:New York* had run a plot thread through a whole series which took place simultaneously in New York and Second Life. We found it impossible to imagine that happening again. Many other online worlds had launched, failed to gain sufficient followers, and gone out of business, while others had sought out niche markets in which they could continue to remain viable. Google had developed an online world called *Lively*, which it launched in beta in July 2008, and then killed off in December 2008, just before its official launch date. Active-Worlds seemed to have retrenched into operating as a little-discussed and little-used academic tool. Certainly nobody seemed to write about Active-Worlds anymore in the mainstream, or even the computer, press.

Our new first year students expressed a keen interest in social games and mobile apps for phones. They seemed to have little enthusiasm for projects in online worlds which appeared to them as an old-fashioned and failed technology. Gamers used to *World of Warcraft* and *Eve Online*, expressed scorn at the graphics in Second Life, while others regarded it as pointless. They felt that social activity belonged on social media where they could show off as themselves, rather than by assuming another identity.

We realised that many of the new start-ups had begun with teams of two or three, and many of them had begun while the team members studied and before they graduated. In this changed context perhaps we no longer needed to offer simulated experience; perhaps we should carry out real projects instead.

We spent the autumn in discussion. In January 2010 we formally closed the Marinetta Ombro project and (with one important exception discussed later in Chapter 19) carried out no further work on the island in Second Life.

12.1. Full Circle

We began looking at social gaming with the students. Many, if not most, of the games at that time presented themselves as card games, in one way or another, and based themselves on variations of the rules of paper-scissors-rock, in which power A beats power B, power B beats power C, and power C beats power A. We examined the history of these games, from *Magic: the Gathering* through *Pokemon* to more recent incarnations based around franchises such as *Transformers*. In doing this we realised that a complex backstory formed a crucial element in each game, and that each game required the player to immerse themselves in, and gain an understanding of, this background in order to play the game well.

Pokemon offered a particularly well developed version of this. The video games, the animated television series and the trading card game all fitted together seamlessly. Whereas a poker player can learn everything they need to know about the game from playing and observing the game, because the logic of the game remains internal to the game, a *Pokemon* player will gain an advantage from a familiarity with the characters on the cards and their behaviours as depicted in the video games and cartoons.

We therefore found ourselves coming full circle. We had begun the Marinetta Ombro project by developing a world. We have done much of this development work before we had any online representation of the world. Before we even launched the island in Second Life, we had discovered the complex history of Rosario, and familiarised ourselves with the leading players in this history. We now ran a game design course that finished with a group project in which the group developed a social game that would work partly online and partly offline. We needed a story for this game, and we found it by using the history and geography of Rosario as the backdrop for the game.

The students developed a game called *Familia di Rosario* that imagined three secret factions vying to control Rosario's destiny. Each player controlled a character on the island that had membership of one or more factions. Each player tried to assist one faction to unmask the membership of the other factions while trying to remain anonymous. The game took place on a map of the island with the nine towns representing areas of potential control.

In this way the project ended as it had begun: as a set of interlinked narratives used to trigger creative thinking by providing a coherent framework within which such thinking could develop.

12.2. Lessons Learned

By the end of the active phase of the project we had learned more than we had originally intended. Creating and maintaining the project had led

us into unexpected areas and required us to address a number of complex theoretical issues.

Marinetta Ombro as mental mapping

The first stages of the Marinetta Ombro project had involved imagining aspects of the virtual culture we wanted to create. We had had to create the history and geography of the island. Concept design and branding courses form a key part of the digital online media students degree program, and we utilised those courses for this purpose. We located the island precisely halfway between Crete and Malta, and north of Libya, and challenged students to answer questions such as: what animals and plants would live on the island, and what crafts would we find there? What happened to Rosario in the First World War? Do Rosarians feel primarily European or African? What god(s) have the Rosarians worshipped and why?

We further encouraged students to raise more general questions about the specificity of place and time, and the shorthand methods used to depict these in different media. What makes Paris Parisian? Where do we find the nineteen-fifties-ness of the nineteen fifties? How do we recognise these in films, books, radio broadcasts and postcards? We measured the success or failure of these exercises by circulating the initial results as e-books, and then devising presentations and lectures about aspects of life on the island.

A web design course then took this material as its starting point and built websites designed to attract holidaymakers to Rosario. We launched these online using the URL www.marinetta.info and they remained online until the project closed. Students updated the sites annually as part of the web design course.

Arcada's media courses have always worked within a constructivist framework that, as far as possible, allows students to learn through doing. Students gain experience in designer / client relationship as early as possible, and the use of the data from the island of Rosario enabled us to place students in such a relationship much earlier than previously. Because we utilised "real" data, and because we had an existing site online that did need updating (and because we inserted a launch date into the process) students not yet ready to work in a live situation nonetheless simulated it with an uncanny accuracy, by working in a live albeit largely fictitious situation.

Working with mental maps

Not only had the media students participated in this way: we had also successfully interested staff and students from other departments. The community health students had always had to work together to produce a community health plan as an important part of their course work. Previously they had done this as an entirely imaginary exercise, based on extrapolating data from publicly available information from municipalities in Finland. For three years after the inception of the Marinetta Ombro project, however, students produced health plans for different villages on the island, based on a complex series of population and economic data that we constructed for that purpose. These figures did not arise from thin air. We worked with our students to derive them by averaging the population figures for surrounding regions, allowing for the differences in geography and wild life, and then factoring in aspects of the different cultural and political histories.

We measured the success of this project anecdotally. The students enjoyed the exercise and could explain why. The attractions of creating a healthcare

plan for a village in Rosario proved quite similar to the attractions of playing Pokemon. Both have a set of established mythologies that you can consult outside the game, and both mythologies feed into, and serve to enrich, the experience of playing the game.

Being given a random set of figures and then told they represent a nameless town that needs a health plan seemed less engaging for the students than being given a set of e-books that relate to a country you can explore and explore, and being told that one of the villages you find there has a need for a health plan. Context seemed all, context proved engaging, and (at least in this limited sense) context enriched the learning experience. Both Pokemon and Rosario seemed to supply immersive context that drew students in.

We saw the same conclusions reached when the international business students became involved with the island. They had also previously engaged in simulations that had no real context. They had had to construct business plans for imaginary companies based on given sets of figures. When the staff decided to use the island of Rosario several things happened. Firstly, the starting point for the simulations moved several steps back; and secondly the students had to, in effect, invent their own simulations.

The business students received the figures on population density, age and gender spread, educational levels, and health issues that we and the community health students had collected. Their assignment involved analysing the figures and then looking at the geography and history of Rosario. From this data, they had to propose a business that they believed that they could start on the island; construct a business plan for the business; and then justify it in terms of the overall geographical and political context of the island.

Bizarrely, this resulted in the students making a three metre square papier mache model of the island which they displayed publicly at a number of conferences. We therefore ended up with a real model of a so-called virtual world that demonstrated the imaginary businesses that the students had really situated there, based on the extrapolated figures they had received.

Marinetta as programming

The initial stages of launching the 3D online world meant that Marinetta became a topic for a number of programming courses. Here, as in the previous examples, this resulted in us refurbishing or upgrading the teaching exercises in existing courses. From being isolated examples proposed to make a specific point they became building blocks in a larger structure.

Digital online media students created a set of websites designed to make the project self-documenting. A newspaper site at www.jurnalo.info enabled any students involved in any aspects of the project to report on their activities in the guise of newspaper articles.

A hub site at www.marinetta.org housed an online encyclopaedia, listing the ever-growing details of the island's history, with entries dating from 1452BC "when the Emperor Tutmosis III, husband of Queen Hatshepsut, ascended to the throne after her death in 1480 BC, and began the great territorial expansion of the Egyptian New Kingdom. Phoenicia and Palestine were conquered and the island of Rosario was subsumed into the Empire, serving as a convenient port and supply base".

This history, like the geography, carefully slotted any necessary fictions into consensus reality - and the success of this proved one of the key measuring sticks during the early phases of the project.

The very existence of the island online prompted two separate programming interventions from the Computer Science department at Arcada. The first looked at the question of security and caused students from the cryptography courses to take the SCOL engine to pieces, and propose a series of improvements. The second resulted in John Packelen's thesis *Virtuella Världar: Öppen källkod och icke-Öppna läsningar*, which detailed his research attempting to construct a home-made 3D environment built in Macromedia Director 8 to compare the educational possibilities of working with Director as opposed to SCOL.

Subsequently, computing science courses have looked at developing ways of communicating in and out of virtual worlds: projects that resulted, for example, in one of the first instant messaging systems for Second Life.

Marinetta as design

The existence of the island online enabled us to expand and enhance a wide range of design exercises in several courses. Again, we did not emphasise teaching "in a virtual world". Rather we attempted to use a synthetic culture as a learning object, to improve the quality of existing courses by making the exercises appear less arbitrary to the students due to the fact that they now slotted into a global context, a back story that students could play with while learning.

The introductory course in digital imagery provided one powerful example of this. We had designed this in order to make certain that students had a clear understanding of key Photoshop concepts and an ability to use Photoshop to practical effect. However, one cannot teach Photoshop without making images, and traditionally it had proved difficult to find a suitable range of images that students had a genuine interest in.

When we had moved Rosario into Second Life, we found several ways to solve this problem. We quickly realised that designing and manufacturing clothes in Second Life required students to understand and use almost everything that we were trying to get them to learn. They had to use layers and masks. They had to understand how to use transparency. They had to understand file formats. They had to make 3D images using 2D templates.

We did not need to assess the effectiveness of this course, statistically or diagrammatically, because it became abundantly clear very early on that almost all students preferred making clothes for their avatars to colorizing photos of Elvis or any of the other previous "teaching exercises".

We soon built upon this by setting up a free clothes store on Rosario and advertising it inside Second Life. We invited students to assess their own, and their peers', work using one simple criterion: if you give it away and nobody takes it, how can you claim it has any value?

Our students train for a life as web designers, graphic artists, programmers: people (often self-employed) who will work to specifications set by clients. Understanding what the market wants therefore becomes one of the skills that they need to learn during their time at Arcada. By co-opting the other residents of Second Life as potential customers we could put the students inside a genuine working market.

The students' final Photoshop exercise did not simply involve making some clothes; it involved making some clothes that other residents would actually want. This meant that they had to do market research. They had to look round Second Life and see what people were wearing. Then they had to work out

what they could do that would attract residents. Then they had to make and market it.

And if you made it and nobody came then you had to offer a constructive self-assessment.

Marinetta as interaction

The existence of the island of Rosario, and its capital village Marinetta, in Second Life prompted a series of interdepartmental and international projects that were based upon the interaction possible in a huge online environment, and the creative interference that this can generate.

The tourism department at Arcada produced a detailed tourism plan, aimed at solving a real problem.

If the assessment methods seemed clear one could still argue that assessing the effectiveness of the clear-cut assessment methods proved less than clear-cut. Some students revelled in what they saw as freedom to "really do it". A smaller number of students claimed that "it wasn't fair". As a result of lengthy discussions with the students, individually and in groups, we discovered that the students who objected to the exercise as unfair seemed all wanted "teaching", and appeared unhappy in any situation that they perceived as self-led.

The whole Marinetta Ombro project reached its climax when Helsinki held the Eurovision Song Contest in 2007. I have described this elsewhere from the perspective of the people of Rosario, who:

...campaign to be recognised by the organisers and allowed to submit an entry. Perhaps unsurprisingly the organisers remained unmoved, despite the viral videos that appeared on YouTube in favour of the campaign.

Kelly (2010)

12.3. Conclusion

The existence of the island of Rosario enabled us to pursue a number of liberating activities, and indeed still does.

We have based the ways in which we assessed the efficacy of the work the project has enabled on our belief that Second Life forms a tool not a geographical space, and one should analyse it as such. We have come to regard the best methods for this analysis as diagrammatic and not statistical. We have created diagrammatic models that relate to things we think we know in order to find out more about those things, and more about what we think about them. These "things" have ranged from existing academic courses to more exploratory workshops.

However, some of the issues that emerged from the project allowed no easy resolution, and at the end we still felt unable to offer soundly based justifications for our claims. Programmatically and pragmatically the projects and courses described above had measurable successes, and the students involved claimed to enjoy them. However the reasons why the courses worked, and the reasons why they proved enjoyable, proved altogether harder to pin down.

I could find no obvious theoretical framework within which to place our work. We wanted to know that uses we could make of synthetic worlds that would

take advantage of the specific features that drew people to them, without simply using them to paint over our current practices with a veneer of trendiness. To do this we needed to understand how such worlds worked as tools, and to understand this we needed to know more about people, as learners and as thinking beings. We realised finally that we needed, in fact, a theory that explained the human mind, the evolution of tools, and the cultural relationships which people have with them.

The next part of the thesis will outline the understanding we reached about the human mind, and the third part will look at the evolution of cultural tools, before finally proposing a place in all this for synthetic worlds.

PART 2: HUMAN MINDS

This part of the dissertation describes the outcome of a lengthy period of reading and reflection. It does this in a series of chapters that attempt to present the findings as a coherent argument. It goes without saying that the process of research itself happened in a much more chaotic way, with many detours and dead-ends.

Diagrammatic Inquiry (106)

Immersion, Augmentation & Detachment (116)

From Binary to Triadic (123)

Who does The Driving? (133)

The Consciousness Dilemma (148)

Meme Theory (158)

Stories And Truth (171)

The need for such reflection arose from the fact that, during the empirical research, we found ourselves struck by the trivial nature of much of the academic discussion about so-called "virtual worlds". Much of this seemed to leave the nature of the experience itself unquestioned, and concern itself solely with the alleged problems and issues around establishing suitable teaching methodologies for "virtual classrooms". We found that we had a number of concerns that appeared of little interest to others ostensibly pursuing the same path as us. These included:

1. the nature of the language people used to discuss Second Life, and other similar "worlds";
2. the ways in which people approached phenomena like Second Life;
3. the differing ways that they reacted once they entered Second Life;
4. what, if anything, these reactions revealed about the relationships between people's emotions and thoughts;
5. what, if anything, this indicated about "what it is like to be" a person; and
6. what all this evidence might suggest for the use of phenomena like Second Life for learning.

The chapters that follow will offer an answer to these questions through an argument that will, of necessity, roam over a wide territory. I trust that none of this wandering will, in the end, prove irrelevant to the conclusions that I draw.

CHAPTER 13: DIAGRAMMATIC INQUIRY

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From the outset of Marinetta Ombro we had as much interest in, and concern with, the form of the "world" as with its content. During the first part of our explorations in Second Life we had become increasingly concerned with the terminology used to describe both our project and Second Life in general. We came to believe that, to a worrying extent, the terminology used to discuss the project determined the questions people asked of us and, therefore, the answers we sought and the directions we pursued. We therefore spent some time thinking about these issues with our students.

13.1. Where Can We Find Cyberspace?

From the earliest student reports in 2003 we realised the extent to which two terms had become accepted in journalism, academic writing, and research applications: "cyberspace" and "virtual reality". The ways that people used them both seemed, by accident or design, either confused, confusing or misleading.

The widespread adoption of the term "cyberspace" had had the effect of imposing a set of spatial metaphors on an area of activity that one could characterise as tangentially spatial at best. These metaphors, in turn, served to characterize the way in which people approached work in this area, discussed it and thought about it. To take but one example, a website called CyberGeography declared itself "an atlas of maps and graphic representations of the geographies of the new electronic territories of the Internet, the World-Wide Web and other emerging Cyberspaces".

This claim struck us as simply nonsensical, unless the writer could support it with

an argument explaining why one should view these new "electronic territories" as territories; what kind of territories they actually form, and what features they possess that one can reasonably describe as geographical. The term "cyberspace" then, introduced uncalled-for ideas of distance, geography, neighbourhoods, frontiers, and more, into discussions that might more usefully concern themselves with the reception and interpretation of digital data. Its proponents implied that our use of the internet caused us to travel to a place that has the kind of intractable and non-negotiable reality that places have. Consciously or not, they implied that we 'go' to these places in a similar way to the way that we go to real places such as Melbourne or made-up real places like Legoland.

Admittedly, people make games or educational environments that exhibit persistence by retaining information from one user session to the next, and therefore users might engage with an on-screen environment containing a narrative which predates their personal involvement. These points only address our status with regard to the digital environment, though. They say nothing about our ontological relationship to it, which remains a coming together of a creative imagination and a set of ongoing relations.

13.2. Neither Real nor Virtual

If we cannot describe cyberspace as a place, then we should not view "virtual reality" as either virtual or real.

The use of the word "reality" implies that we can view "the new electronic territories" as an object, or a collection of objects, that "has the properties it has independently of any individual's arbitrary wish or desire". (Ketner, 1993, p8). In practice, the on-screen experience has to be wilfully sustained by the user. Rather than an alternative reality, it appears much closer to William Gibson's original definition of cyberspace as "a consensual hallucination experienced daily by billions... A graphic representation of data" (Gibson, 1984, p54).

At the start of a session, the user must suspend disbelief, and then during the session work at keeping it suspended. At any time, deliberately or accidentally, the user can lose focus, or have focus snatched away from them; and thus lose imaginative communion with the on-screen world. The process of engagement requires the user to remain wilfully insensitive to all activity at the fringes of their senses: the sound of traffic outside the window, the sight of a fly in the room, the smell of cooking from the restaurant downstairs.

We require no similar set of manoeuvres to remain in situ in reality. By definition you cannot lose communion with a geographical reality. However much you may wish to live as a solipsist, you do not exist in Legoland or Melbourne by force of will alone, and you cannot beam out of there by withdrawing consent. Real objects, and real places containing real objects, have an existence that lies outside our interaction with them. We necessarily work within the limitations that they impose upon us.

One might argue at this point that nobody claims that what we see on screen "is real", only that it appears "virtually" real. However, the word "virtual" seems as bogus as the word reality. When we learn in a novel or newspaper that "the victim was virtually dead" or that "the company was virtually bankrupt when the new CEO arrived" we understand two things from this. Firstly we understand "virtual" as nearly synonymous with "almost": the

phrase meaning something very similar to "the victim was almost dead". Secondly we understand "virtual" to imply the real possibility of movement towards a final state. Therefore we regard the person as "almost dead and in a condition that might become real death at any moment". Similarly we understand "the company was virtually bankrupt when the new CEO arrived" as meaning that the company "was almost bankrupt and might have collapsed into actual bankruptcy in a matter of days". Freek Rijna describes this slightly differently, in that he notes a second use of the word. "In the English language "virtual" seems to have two meanings. The first is that of "as good as" or "similar to". "He was virtually dead." "The virtual absence of border controls made it easy to smuggle drugs into the country". The second way in which "virtual" is used is similar to "digital". This use has no clear boundaries and is quite vague" (Rijna, 2007, p3). However, we should regard this second use as a sleight of hand, intending to imply an equivalence that we will not find. This use of the word "virtual" gives us the term "virtuality", the proponents of which clearly intend to imply an ontological equivalence with "reality" without ever quite specifying the details. This simply returns us to the first part of the argument above.

The phrase "virtual reality", then, seems to imply that what we immerse ourselves in might or might not "be real" now, but nonetheless contains the possibility of the motion necessary to move it into a final state of actual reality. Nobody has ever provided any evidence whatsoever that shows this as anything other than wishful thinking. It seems, at best, an optimistic fantasy and, at worst, a deliberate sleight of hand.

13.3. Pedantry and Snake Oil

We might wish to acknowledge that these terms seem unfortunate, and even that some people have deliberately misused them, while denying that we have anything we should concern ourselves about. I disagree. I believe we do have something to concern us. People have used these terms not simply to describe an (allegedly) new phenomenon. They have used them to direct attention and energy in specific directions, and to make certain activities appear self-evidently sensible, while marginalising others. By insisting on discussing digital activity in terms of geography and reality, "innovations" like Swatch Internet Time could seem important, as a way, for example, of making the information superhighway navigable. If cyberspace does not exhibit any of the attributes of a place, then we might rightly regard Swatch Internet Time as a badly flawed solution to a completely non-existent problem.

When Swatch launched it on October 23, 1998, Nicholas Negroponte, its chief architect and cheerleader, found the idea that we had discovered "new electronic territories" to explore very useful for his purpose. It suited him to take the metaphor literally, and to encourage others to do the same. He said: "Cyberspace has no seasons. The virtual world is absent of day and night... Internet Time is not geopolitical, it is global... For many people real time will be Internet Time".

This kind of language strives to make it appear as though we find ourselves working with objects that exist "out there", as though we have discovered somewhere new and unexplored, when in fact we work with processes, with relations, that we negotiate communally, every aspect of which oozes contingency. As I described in Chapter 7, this kind of concept proved very

attractive to some of our students, through its contrived novelty, and we began to analyse it in response to their interest. We concluded that this kind of language, seductive though it appears, attempts to reduce a triadic relationship to a dyadic coupling: a logically impossible sleight of hand.

13.4. Objects and Relationships

We can describe the processes that we have explored in the Marinetta Ombro initiative as processes of immersion into a coherent set of patterns that we intend to imagine as a world. We can describe the purpose of these processes, or relations, as learning through play, or perhaps as play through learning. We can regard the difference between process and place, between relation and object, though, as unbridgeable.

These relations have three characteristic facets that together we may label "engagement": immersion, interaction and identification. Users become immersed in the activity on the screen to the extent that they can keep their attention focused there. Often the onscreen data enables them to interact with other users, while providing a mediating framework within which they can contextualise this interaction. Thirdly, users may identify with their own on-screen avatar, but more importantly, if their experience proves successful, they will come to identify with the environment itself, with the rules, relations and events they find there.

13.5. World of Tools

The on-screen worlds that we create do not form "realities", for the reasons that I have described, but I believe that we may fairly describe them as worlds, if we use that word in the limited (and metaphorical) sense implied by "the world of cinema mourned the death of Lauren Bacall", or "he strode the world of golf like a colossus". As discussed earlier, the use of "world" in this context has arisen from suggestions by Richard Bartle, among others (Bartle, 2003).

Used like this, the word "world" means a club, a group with insiders and specified laws and codes of behaviour; a group however that serves a public function involving outsiders. In this, and only this, sense, we can reasonably talk of on-screen worlds; to talk of "entering the world of" Ultima Online or Rebel Dawn, or Second Life.

We do not, and cannot, live in this sort of world. We do not eat and drink there; we do not give birth or die there; we do not make friends or enemies there, except insofar as we can and do the same things when we use a tool like a telephone. An on-screen world is a tool for facilitating complex interactions between people, sometimes by providing them with a backdrop in front of which they can move and talk, and sometimes by providing them with created entities with whom they can practise or simulate interaction.

These worlds that we "enter" offer sophisticated communications techniques that bear a family resemblance to older tools like telephones. Both offer a shifting figure and ground, and we can define both as cool media.

There is a basic principle that distinguishes a hot medium like radio from a cool medium like the telephone, or a hot medium like the movie from a cool one like the TV. A hot medium is one that extends one single

sense in "high definition". High definition is the state of being well filled with data. A photograph is, visually, "high definition". A cartoon is "low definition" simply because very little visual information is provided. Telephone is a cool medium, or one of low definition, because the ear is given a meagre amount of information. And speech is a cool medium of low definition, because so little is given and so much has to be filled in by the listener. On the other hand hot media do not leave so much to be filled in or completed by the audience. Hot media are, therefore, low in participation, and cool media are high in participation or completion by the audience.

(McLuhan, 1988, p31)

When we work with immersive worlds we work with a low definition, cool medium and this has important implications for how we can best use them. I will argue later that we can best view and use them as both worlds of tools and worlds as tools.

13.6. *Semeiotics*

If we wish to resolve these doubts which, after all, constitutes the underlying point of all scientific research (in other words, the inquiring activities of a scientific intelligence, "that is to say, by an intelligence capable of learning by experience"), we need a firm starting point for our investigation, a logical method for resolving doubt. As Ketner (1990) points out, "Logic is the fundamental academic discipline, basic to any academic subject which proposes to use an objective method" (p13).

I suggest we could do no better in this respect than to examine some of the concepts proposed by the American philosopher, mathematician, and logician Charles Sanders Peirce. He wrote as a pragmatist who did not believe that we could ever find an absolute starting point for our thinking. He stated that we "cannot start from any other condition than that in which we actually are ... We really believe many things, and, therefore, philosophic doubts upon such matters must be mere pretence and can result in nothing but a show of demonstration of things really taken for granted".

Peirce evolved a logical system, semeiotic, that took a triadic form. In line with his almost phenomenological belief that we have to start from where "we actually are", semeiotic "conceptions can be viewed as abstractions from common-sense practices, and as such are by no means infallible or eternally valid." (Bergman, 2000, p134) Philosophers have described his work as triadic because he demonstrated that, while the conventional binary logic (yes-no, cause-effect) can adequately describe brute, natural events, it cannot adequately describe any relations that involve purpose: or in other words any events that involve, or derive from, human agency. Binary logic proceeds by writing intention or purpose out of the equation, which, from Peirce's perspective, misses the whole point!

He argued that "John gives the book to Mary" describes a single set of relations containing three elements. He demonstrated, mathematically and linguistically, that one cannot reduce this to sets of two, as proponents of sequential cause and effect would argue. "John holds out the book. Mary takes the book" does not convey the same meaning as "John gives the book to Mary" precisely because the former removes the element of intention.

In terms of communication, we should also note that its "future-orientedness" (Bergman, 2000, p134) forms an important element of Peirce's semeiotic.

13.7. Diagrammatic Thought

For our present purposes, Peirce's key concept of diagrammatic thought has a particular relevance. Kenneth Laine Ketner explains this as follows.

How then can we analyze thought, or signs, or communication? ... If "analyze" means "come to have a better understanding of x" then the answer seems to be that we must analyze signs (triadic relations) by means of other signs or triadic relations. In particular, if there is a matter about which we lack understanding, we can use a set of relations that we comprehend reasonably well to model the relations in the area of relative ignorance ... Stated in a very abstract fashion, this is Peirce's method of diagrammatic thought, a technique he originally developed out of mathematical considerations, but adapted for other problem areas.

(Ketner, 1995, p248)

Peirce himself described this faculty of "abstractive observation" as one that

ordinary people perfectly recognize, but for which the theories of philosophy barely leave room. It is a familiar experience to every human being to wish for something quite beyond his present means, and to follow that wish by the question: "Should I wish for that thing just the same, if I had ample means to gratify it?" To answer that question he searches his heart, and in doing so makes what I call an abstractive observation. He makes in his imagination a sort of skeletal diagram, or outline sketch, of himself, considers what modifications the hypothetical state of things would require to be made in that picture, and then examines it, that is, observes what he has imagined, to see whether the same ardent desire is there to be discerned. By such a process, which is at bottom very much like mathematical reasoning, we can reach conclusions as to what would be true of signs in all cases, so long as the intelligence using them was scientific.

(Buchler, 1940, p98)

Despite his clear and powerful arguments, and the demonstrable success of his method, people habitually ignore this method, assuming it "unscientific". Current theorists attempt to replace it with approaches such as Sussurean semiotics and structuralism: approaches that claim to analyse purposive relations in terms of dyadic concepts. Or people ignore it in favour of reductionist "quantitative" research which seeks to assert a near-perfect relationship between those sampled, their responses and their real opinions; and between those opinions and the opinions of the larger population whom they allegedly represent.

Peirce's semeiotic differs radically (and very usefully) from these approaches, because it concerns itself explicitly with the analysis of triads, and so proceeds through diagrammatic mapping, which it views as a legitimate scientific tool for resolving doubts.

13.8. Mapping Relations

Unsurprisingly Peirce did not write a comprehensive philosophy of media theory, but others have subsequently drawn the major aspects of such a philosophy out of his books and manuscripts. Interestingly, we can justifiably view his work as a direct precursor of the work of McLuhan, with many of the same themes and strategies observable in both.

Peirce, for example, explicitly stated that "whatever we know, we know only by its relations, and in so far as we know its relations". Indeed, he claimed that "in reality, every fact is a relation". In this he agrees with Marshall McLuhan, who stated that "objects are unobservable, only relationships among objects are observable".

Both avoided statistical approaches to analysing relations, in favour of "abstractive observation". Peirce proceeded by constructing diagrams (or models, or artfully argued analogies). McLuhan talked of his approach as "building probes" that, he claimed, have no methodological point of view. He argued that his method resembled "that of a safecracker. In the beginning I don't know what's inside. I just set myself down in front of the problem and begin to work. I grope, I probe, I listen, I test until the tumblers fall and I'm in. That's the way I work with all these media." He describes himself thus: "I am an investigator. I make probes. I have no point of view. I do not stay in one position. I don't explain, I explore".

Thus we arrive at the heart of the matter: it will prove futile and self-limiting to look at on-screen worlds as objects, rather than discussing their characteristic facets as the cultural production of repeatable dialogic relations. It will prove impossible to do this by amassing statistics. It may indeed prove impossible to do this by any means other than a process of mapping.

13.9. Movies, Immersion & Diagrams

We might begin to discuss the relations embodied in synthetic worlds by noting that these constitute a cool, low definition medium. In this, as McLuhan (1964) himself noted, they behave very differently to a high definition, low participation medium such as movies. We can thus see the apparent similarities between the two, between movies and computer-generated worlds, as superficial and misleading.

This means that we have no reason to presume that anything we know, or think we know, about the reception and interpretation of movies will necessarily have any relevance to the study of synthetic worlds. If we cannot use film theory for our purposes, then what can we use? Logically we should look to find a body of critical theory that deals with a related cool medium. I believe that we can find just this in literary theory.

In slightly different ways Peirce and McLuhan themselves point towards a literary critical approach to analysis, an approach that begins by creating exploratory models and then proceeds by discussing and debating the feelings and reactions these models engender. They both argue that we should view logical analysis as a process of dialogue, not an operation of sifting facts and computing numbers.

We need a kind of dialogue that challenges; one taking place at the boundaries of narrative and the borders of language. We need a dialogue that begins where McLuhan began. In the words of Jonathan Miller, McLuhan believed

"that there is a point where apparently language is broken down in the lines of getting ideas across, and he is try to open up the possibility of not remaining silent, of being communicative by using new techniques which language has perhaps not provided".

13.10. The Fallacy of the Fracture

If we adopt a literary critical approach we will immediately see that we cannot describe our work as either completely new, or unprecedented. It forms a continuation of work carried on for at least one hundred and fifty years. The idea that history has altered, that "everything you know is wrong", that today bears no relationship at all to yesterday, and that "virtual worlds" constitute a new way of teaching and learning stands revealed as just more of the self-appointed digerati's snake-oil salesmanship.

People have had the ability for centuries to experience all of the aspects of what I have termed engagement through the act of reading. Any novel invites the reader to engage with it in the same way as an on-screen "world", by using strategies that rely upon the willing engagement of the user.

As McLuhan has pointed out repeatedly, we do not live or work at the beginning of a revolution. Rather, the revolution began decades ago and we didn't notice it. The move from goods to information (from "atoms to bits", in Nicholas Negroponte's phrase) began with the widespread availability of electricity, spread with the acceptance of movies, telephones and radio; gathered steam with the introduction of television; and ascended to ubiquity with the recent dominance of computers and networks.

The key to this, then, lies not with computers, but with electricity, "for electricity not only gives primacy to process, whether in making or in learning, but it makes independent the source of energy from the location of the process", which explains why McLuhan designated the current period the electronic age and not, for example the television age. (McLuhan, 1964, p370) The internet, and the 3D environments that we access through it, form the most recent and most powerful electronic tools available to us, but they operate as part of a lineage, a cultural history, that stretches back to the beginning of the twentieth century.

If we understand this, we can see why no newly discovered place called cyberspace, where the rules of life behave differently or get somehow suspended, can exist. "Minimally all humans share one discursive universe, i.e. reality. This reality is a conception brought on by the fact that world refuses to conform to our will." (Bergman, 2000, p135)

From this perspective we can see the thread of continuity in our work that links us to the Dadaists, to Joyce and Burroughs, and we can see the ways in which our work fulfils the prophecies of Ted Nelson concerning hypertext (Nelson, 1974), in ways he never intended.

13.11. Diagrammatic Worlds

Charles Sanders Peirce greatly preferred visual diagrams, arguing that the visual formed the most highly developed sense, although he adopted a liberal attitude in his definition of "visual". He viewed algebraic equations, for example, as visual examples of the diagrammatic method. We can view on-screen worlds such as the Marinetta Ombro project as visual diagrams,

or more exactly as a lattice-work of visual diagrams woven together but still viewable discretely from different perspectives.

We can view this kind of on-screen world as a set of diagrammatic maps or texts that we may analyse most efficiently through the tools of literary criticism. The objects on the screen may not seem "text" in the sense of letters on paper but we can interpret them as cultural markers, and we can certainly see the relations between the users, the screen, and the on-screen "world" as textual.

When we use terms for the machinery (hardware and software) that does this, and for the outputs of that machinery, we need terms that describe process, not terms that conjure up an imaginary "out there" and insist on discussing it as though it really existed. The virtual-world-out-there does not exist; only our relationship to the shared fiction that it projects exists.

If we start from this position we shall avoid the pitfalls of pseudo-geography, and the traps laid for us by the elves of self-promotion. We will have the ability to start talking about our work in terms of its antecedents and its intended goals; in terms of analogies and diagrams, rather than dubious "realities".

We can now engage in dialogues that, in method as well as subject-matter, seem congruent with the constructed worlds whose narratives we wish to "write". From here we can develop critical tools, based on the similarities in approach between Peirce and McLuhan. We can, in fact, look for ways of explicating Peirce's trivalent logic and putting it to practical use as a key part of the foundations of a logical and objective system for analysing and understanding on-screen diagrammatic worlds.

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13.12. *Diagrammatic Worlds as Praxis*

We developed the analytical approach outlined in the preceding sections over a period of approximately three years and we therefore (roughly speaking) had it in place at the time when we launched a version of the island of Rosario in Second Life.

We used this as a framework not just for our research but also for assessment within the project. As noted in the introductory section Arcada's Media Department had too few students to allow us to use the standard tools of quantitative research. We had to face up to questions such as

1. Does it mean anything to say that 25% of a class of eight students felt like this while 50% felt like that?
2. Why should we assume that two, or even twenty, students accurately represent students-in-general?

Peirce and his followers have advanced powerful theoretical arguments to suggest that this kind of approach contains inevitable flaws. These start by noting that statistical arguments have a dyadic form while all human relationships appear as triadic. (A full discussion of Peirce's concept of triads lies beyond the scope of this essay but you may find an illuminating introduction in Kenneth Laine Ketner's paper *Novel Science or How Contemporary social science is not well and why literature and semeiotic provide a cure.*) Ketner (1993) has asked "how then shall we analyze thought, or mind, or communication, or literature, or society, or culture if these are essentially triadic?" (p54). He suggests that, following Peirce, "we must analyze triadic relations by means of other triadic relations" (p55).

Since we did not, and do not, have a large enough pool of students to allow for control groups of any kind, nor to allow us to phrase results in terms of percentages with anything like a straight face, we approached the idea of assessment within the project in a frankly hermeneutical and literary way. We followed Peirce and Ketner in constructing diagrams of various kinds, including McLuhanesque tetrads to use as probes.

13.13. Benefits of a Revised Terminology

Revising our terminology might seem a relatively trivial activity but it revealed to us the extent to which we had become prisoners of our own vocabulary. Linden Labs had actively engaged in propagating the idea that Second Life constituted a new world ready for settlers and welcoming explorers. These terms had become standard in discussions about Second Life, both in-world and outside. Redefining our key terms in this way had a number of positive effects.

Firstly it brought our activities back into the field of media research. We could discuss, explore, research and work with online worlds as a medium of communication and put notions of "exploring cyberspace" to one side. We could move from asking how we could "teach in cyberspace" to asking how the medium worked and how we could best make use of it. This had the effect of bridging an important gap between our activities and those of the rest of the Media Department.

Secondly it served to reframe our discussions about why we should participate in Second Life: to ourselves, to other people in Arcada, and to people outside.

Thirdly it signalled the importance of not taking the theoretical frameworks we used for granted, and underpinned the need to make the development of these frameworks an explicit part of the project. In particular it raised the possibility of approaching the research and its documentation from a position that one could better describe as literary criticism than social science.

Fourthly it ended our use of the term "virtual world", since we felt this term gave people the wrong idea of what we intended in our work. Instead we began to use the terms "synthetic world" when we spoke in general about the whole range of online business and entertainment services in which the user moved an animated character that represented them around a simulated environment. "Synthetic" has various definitions, none of them with the same problems as "virtual"; including its use in logic where *The Oxford Dictionary* defines it as meaning "having truth or falsity determinable by recourse to experience".

Additionally, we began to use the term "immersive world" when we talked about a subset of online worlds in which users role-played characters who did not represent them but instead had their own dynamics. From this perspective World of Warcraft and Eve Online constituted immersive worlds, while Second Life offered its users a 'world' that they could choose to use immersively, although many chose not to do so.

CHAPTER 14: IMMERSION, AUGMENTATION & DETACHMENT

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When we first asked staff and students to join Second Life and assess its potential as a place to house the Marinetta Ombro project, we issued a set of guidelines. We asked people to create a persona for living on Rosario. We instructed them to read through the existing documentation and try to fit themselves into the narrative in a way that pleased them. At this time Linden Labs ran an idiosyncratic naming system for avatars in which new users had to choose a surname from a dropdown menu of pre-defined names, and then create a first name of their own devising. We therefore asked everyone to try to choose a surname that sounded plausible as a family name on Rosario, and to create a first name that also sounded as though it would fit into the overall narrative.

14.1. Avatar Biographies

People responded to this request with different degrees of fidelity but, in all cases, we asked them to provide a short in-world biography of their avatar, in terms of their roles and status within Rosario. Where people had chosen a name that did not immediately sound like the name of a Rosarian native, we asked them to explain something of their family history.

Courtney Mojo, for example, described herself thus.

Born: 1971

physicist, gymnast and theologian

The daughter of Andaro, she studied at UCLA and several institutes, receiving degrees in physics, dance and gymnastics. She worked for many

years on La Marofarmo, and was the instigator of the Marinetta Ombro project.

She then created an entry in the official history for her father, Andaro Mojo. (We had already defined and delineated the role of *La Marofarmo*, a Rosarian research station based on a floating island three kilometres from the shore of the main island, for another part of the overall project).

14.2. Augmentists & Immersionists

People's responses to this request caused us to divide them into several distinct groups. We came to regard the first group as augmentists, because they seemed to see Second Life as a straight-forward extension of their "first life", and they behaved as though this constituted a natural and obvious assumption. When challenged, some asserted that they had not made an assumption at all: that this "was what Second Life was like"! One student responded that

Second Life is a chance to meet people from all over the world and to get to know people you would not normally meet. You can go to nightclubs with them and talk to them by messaging them while you dance.

In this way, members of this group viewed Second Life as a way to augment their contacts and add to the means through which they could socialise. They viewed it as an early version of what we would now call a social network.

We called the second group immersionists because they viewed Second Life as a chance to immerse themselves wholeheartedly in a new play-space - as somebody else. They variously regarded it as a role-playing game with no stated aims, or as a kind of improvised soap opera with lots of self-generated drama. One student in this group felt certain that

Linden Labs say that Second Life is not a game but it is. It is not something you have to do, and it is not real life, so it is something people do for fun. They play in there, and you can never know what games they are playing. You can never know who people in Second Life really are because they can say anything they want. I say that I am from Tokyo if anyone asks me. My [written] English isn't very good and that means I can write funny bad English and make them guess what I mean.

Clearly these two groups had the potential for large-scale misunderstandings, and indeed this happened regularly. In the examples above, the first user has decided to present herself as herself in Second Life, and regards her avatar as a set of clothing she has to wear to enter the space. Experience taught us that she may well become hurt or upset if she finds herself "treated badly" by other avatars. In the second case the user clearly regards his avatar as a character that he adopts or a part that he plays in the way that an actor plays a part in a television drama. He has approached the world as a game, and has even utilised the mechanisms for communicating with other users as tools for entertaining himself while in-character. He has a real life in Finland, and he has an avatar in Second Life, but he encourages other users to believe that this avatar has a completely different "real" life somewhere in Japan.

These two groups exhibited incompatibilities at every level of their Second Life existence: in how they approached the world; how they acted towards other users; how they viewed the consequences of their actions in the world; and how they viewed the consequences of their interactions on other users. Augmentists tended to feel cautious and vulnerable, and to feel personally affronted if they felt that other users treated their avatar badly. They viewed their avatar as an extension of their public personality. Immersionists, on the other hand, tended to view the world as an adult playground in which users played a version of childhood dressing-up games: cops and robbers, GI Joe vs Cobra, the Powerpuff Girls against whoever. Mutual incomprehension arose often between members of these groups: when an augmentist felt hurt or upset the immersionists tended to respond with laughter or, if they stopped to consider, by puzzling about where the problem lay.

By attempting to import their own personality and feelings into the online world the augmentists demanded a level of honesty and transparency from other users. Their conversations often blurred the distinction between Second Life and reality. They might begin talking to somebody about places they had visited in Second Life and then slip comfortably into a discussion about the differences between Helsinki and Boston, having established where each other lived IRL. If they made friends then they would have as much interest in sharing real life details as details of their adventures in-world. The immersionists behaved very differently. They regarded questions about real life as taboo and would react to them with hostility, or by simply teleporting somewhere else. Their name cards might include slogans such as "My real life is none of your business. Don't ask because I won't tell." For them Second Life provided an arena where one could act as one chose, and where the consequences of one's actions would have no bearing on real life. They regarded Second Life in exactly the way that R&R Partners reimagined Las Vegas in their 2003 tourism campaign featuring the slogan "what happens here, stays here" (TheWeek.com, 2013):

The emotional bond between Las Vegas and its customers was freedom. Freedom on two levels. Freedom to do things, see things, eat things, wear things, feel things. In short, the freedom to be someone we couldn't be at home. And freedom from whatever we wanted to leave behind in our daily lives.

Given that variants of this slogan have arisen in many exclusively male contexts, including touring sports teams and rock bands, it occurred to us that this difference in approach might relate to gender: that perhaps males gravitated towards immersionism while women sought to become augmentists. However, the evidence did not bear this out. In our admittedly limited sample, the split appeared approximately equal; with several male students developing negative reactions to Second Life after other users had treated their avatar badly in some way, while the avatars of at least two of Rosario's leading builders and in-world communicators belonged to female immersionists.

14.3. The Three Styles of Naming

We discovered that we could divide the staff and students into three categories, depending upon how they reacted to this exercise. We also discovered

that we could use these categories to predict, with a high degree of certainty, how people would react when they entered Second Life and began to explore it.

The first group of new users chose a surname as close as possible to their own surname, or to an aspect of themselves that they valued. The resemblance might seem obvious (if, by a lucky chance, somebody with the surname Smith found that they could choose Smithy from the dropdown menu); it might bring to bear a clear linkage (as when someone named Brown chose the name Gold); or it might represent a desired quality or characteristic (as with the surname Heart or Love). This group then chose a first name that used their actual first name, their nickname, or a gentle wordplay upon one of these. In this way Josephine Brown might enter Second Life as Jo Gold, Tom Smith as Tommy Smithy, and Susan Jones as Susi Dreamer.

Members of this group then spent a long time assembling an avatar that resembled an idealised version of their real-world appearance, with hairstyles and clothing choices closely mirroring their own. Almost without exception these ended up looking like idealised versions of their twenty three year old self. The avatar would also have a back-story that reflected their own as closely as they could manage. If, for example, they had a long term and abiding interest in horse-riding or roller-blading then so would their in-world character. Their name card would read like a slightly blurred thumbnail description of the real student.

The second group followed our instructions with no apparent desire to recreate themselves in Second Life. They found Mediterranean-sounding surnames, or failing that, surnames around which they could construct an interesting narrative. They added a suitable first name, and then spent time modelling an avatar that they intended to bring to life the Rosarian character they had created. This character would have its own story and might not resemble its owner in any obvious way at all. However it might, in some cases, bear more than a passing resemblance to an existing character from fiction, film or television. When asked, this group would indeed view their avatar as a character, and would talk about it in the third person. One student said, about his avatar

He is a smuggler. His father and grandfather were pirates and their family have a lot of stories and legends about what it used to be like hunting boats that sailed from Europe to Africa.

The third group did not ever seem to see their avatar as a person in any sense at all: neither as a projection of themselves nor as a character in a play. Rather they seemed to see it as a functional tool, in the way that they might view a "handle" for a discussion forum as a useful tool. They could not resist sneaking jokes into their character names. One student, given the option to choose White as a surname, called their avatar Blackand White, and spent a long time carefully dressing it entirely in monochrome outfits. This group seemed to see the avatar as just another element in the world to play with, and their avatars did not retain a constant appearance of any kind. They would delight in finding bodies that resembled monsters, robots, spiders and other shapes. Indeed, members of this group first alerted us to the possibility of completely invisible avatars.

14.4. *The Detached*

Although immersionists and augmentists differed in their understanding of the underlying purpose of Second Life they shared some important features. They both accepted the existence of their avatar as a stable fixture within the world. Whether they regarded Tor Vixen as an extension of their real life personality or as a made-up character, they regarded him or her as their representative in the world. They felt good when other users began to greet her or recognise him, and they tended to give their avatar a consistent appearance precisely in order to enable and encourage other users to recognise them. Users of both sorts rapidly learned the importance of visual clues in Second Life and adopted recognisable and characteristic looks. They tended to seek out bodies and hair that would set them apart from others in their group and then change their clothing within self-created boundaries. In this way they maintained a consistency that allowed others to spot them from a distance, and thus facilitated the maintenance of contacts, and increase the possibility of regular contact turning into friendship.

The third group, which we termed contrarians, did not share this view at all. They seemed to feel completely distanced or detached from their avatar, which they approached as simply another changeable facet of a changeable environment. They approached Second Life as experimenters with little interest in interactivity, whether as reaching-out or as play-acting. In some cases they explicitly expressed disdain for any idea of using Second Life for social interaction. They regarded the augmentists as naive and the immersionists as childish.

For them the avatar simply enabled more experiments. How large or small can we make this avatar? How will other users react to a talking car? What reactions can we provoke by using an invisible avatar? This group never contained more than two or three students at any one time, and they seemed to come from the students (male and female) who had most interest in programming and system design. They made a number of exceedingly useful technical discoveries but they never developed a long-term attachment to Second Life nor felt themselves members of a community there. If they noticed the other users at all they regarded them from an almost anthropological perspective. They might engage in activity to provoke a reaction, but once they had observed the reactions they would lose interest. Mostly they seemed to view Second Life as an interesting toy-box with the other users as possible subjects for occasional experiments.

14.5. *Dimensions of Immersion*

We originally made these observations in 2005, and only later discovered that Henrik Bennetsen's paper *Augmentation vs Immersion* (Bennetsen, 2006). His purpose differed from ours since he sought to analyse the potential uses of Second Life, whereas we sought to develop a standardised approach to this new environment; to work out how best to adapt the Marietta Ombro project to Second Life without it becoming overwhelmed.

Bennetsen suggests that Second Life gradually moved from being an immersive environment to one that promoted augmentation.

I think the notion of SL as a self-contained space started in the early days. LL was faced with selling people this Second Life thing that no

one really understood what was. If you looked at it you noticed the resemblance with a computer game and that is how it was marketed. Prominent members of staff such as CTO Cory Ondrejka also came out of the game industry, so there was a game culture within the company.

In games the notion of the self-contained space is very central. This idea had a strong impact in the early days of SL. CEO Philip Rose-dale would tell you that SL was about building a country -- with its own society and economy... There was something romantically compelling about the notion of SL as being something new and completely different...

I think the augmentation view slowly developed (and is being developed) as the possibilities and limitations of SL became clear to more people. Mitch Kapor described in his keynote at the SLCC how watching Susanne Vega perform live in SL had made him realize that we have to stop thinking about SL and RL as different spaces.

Marinetta Ombro developed as a thoroughly immersionist project. We viewed our avatars as Rosarians, professionally devoted to building an online representation of Rosario. Students who wished to explore Second Life "as themselves" started a second, separate account. We came to realise that our decision to embrace immersion in this way would lead us along very different paths to those travelled by other educators in Second Life, almost all of whom adopted one version or another of augmentism. It would also lead us in a different direction to that taken by Linden Labs. As Bennetsen implies, at the beginning of our period in Second Life residents almost always acted as immersionists in this way. Questions such as "Its 9pm here in Texas, what time is it where you are?" received hostile responses and many avatars would simply teleport elsewhere rather than respond. Long-time users labelled such questions as the actions of newbies and discouraged them at every opportunity. However, by the time we left the consensus had clearly moved a long way in the direction of augmentation. Educators habitually included information in their name cards that identified themselves by their real names and real affiliation, and they held meetings in Second Life to talk in-world about their real-life research.

However, Bennetsen's analysis misses some important subtleties and his description of the movement from immersion to augmentation may need at least one more dimension. As the Marinetta Ombro project developed we noticed students making increasing use of their secondary avatars. When asked, one student said

The world seems much more real when I stop pretending to be someone else. I meet people and make friends, and we go places and do things. I have started to have flying lessons with a friend that I met at a club.

Flying, in this context, refers to learning to use and race the aeroplanes created by an avatar called Cubey Terra, and made available from an island called Abbott's Aerodrome. These represented some of the most complex and most enjoyable toys available in Second Life. Emotional engagement with these kinds of toys, and the activities that they spawned, did not seem to hinge upon a role-playing approach to immersion. On the contrary, it seemed possible to remain immersed in the world itself, and to socialise immersively, without maintaining a Las Vegas-like divide between Second

Life and the real world. It appeared that the process of immersion did not take the form of a global yes/no in which a resident of Second Life immersed herself or did not immerse herself. Figure and ground played a part in the process. Some people treated both immersively, while others rendered their avatars porous, allowing their real life identities to seep into Second Life, while dealing with the world itself immersively.

Users who treated both their avatar (and hence their identity) immersively, and also treated the world immersively, acted as role players. They involved themselves in in-world communities which developed their own social dynamics and rules, sometimes modelled after something external and sometimes self-generated (Bäcke, 2011) People who used their real identities but treated the world immersively acted as explorers, rather like children let loose in a funfair. They made friends, and these friendships sometimes spilled out of Second Life into other online forums and into real life. Inside Second Life, however, they took the world at face value and bought bikes and boats and planes, and went out together looking for adventure. People who treated their avatar immersively, but treated the world as a painted backdrop used Second Life as a social network, viewing the world itself as equivalent to the network's page design. They focused their attention on their avatars, as children focus on Barbie and Ken; dressing them in the latest fashions and then going to clubs and other meeting places to interact with other Barbie and Kens. In this they played with their identity, living out fantasies and private dreams. People who treated neither their avatar nor the world immersively formed the small group we referred to as The Detached; and they used Second Life like a chemistry set or a box of building blocks. Everything in the world, including their own avatar existed for them to take apart and rebuild, and the idea of sociality held little interest for them, except insofar as they met others to share building and coding tips.

These different uses of the world had emotional engagement in common. They all represented aspects of play, rather than logical, intellectual or goal-directed activity. To understand why many adults found this kind of play so engaging, and how this might relate to learning, and the use of immersive worlds in learning, we needed to understand the relationship between rationality and emotion. To do that we needed to understand how the human mind worked; to learn "what it is like to be" a person in an online world.

CHAPTER 15: FROM BINARY TO TRIADIC

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The search to understand the relationship between the mind and body, between rationality and emotion, has many historical starting points. Our initial inclination led us to ignore these and concentrate solely on contemporary research. We soon realised that the contemporary fields, in philosophy, social science and the neurosciences, suffered from fractures of all kinds, and that different groups of researchers did not even agree upon the questions they should research, let alone the answers they might find. We also began to realise that the neuroscience upon which much speculation depended did not have the robustness that many writers assumed. We discovered that "neuroimaging remains a crude technology, unable to meaningfully weigh in on assessments of guilt or innocence, especially on an individual basis. Imaging methods make use of highly-processed blood-flow signals, which cover tens of cubic millimetres of brain tissue. In a single cubic millimetre of brain tissue, there are some one hundred million synaptic connections between neurons. So modern neuroimaging is like asking an astronaut in the space shuttle to look out the window and judge how America is doing (Eagleman, 2012, p48)".

We therefore decided to find a foundational point from which we could build an argument, and we opted to begin with Rene Descartes who appears "synonymous with the birth of the modern age. The 'new philosophers', as he and his followers were called in the seventeenth century, inaugurated a fundamental shift in scientific thinking, the effects of which are still with us today. Indeed, Rene Descartes was one of the principal architects of the very notion of 'scientific thinking' as we now understand it (Cottingham, 1986, p1)".

In 1644, Rene Descartes published *Principles of Philosophy*, which provided the template for the nascent scientific method, one of the most powerful investigative tools that humanity has created. He argued stridently against the prevailing beliefs that

different objects, from magnets to burning logs, contained mysterious and idiosyncratic properties within themselves, and in favour of a reductionist view that all objects arose from the same fundamental particles. He believed that we can explain everything we can see, hear, feel or touch using the same small set of fundamental principles.

Descartes wrote that

I recognize no matter in corporeal things apart from that which the geometers call quantity, and take that as the object of their demonstrations, i.e. that to which every kind of division, shape and motion is applicable. Moreover my consideration of such matter involves absolutely nothing apart from these divisions, shapes and motions...And since all natural phenomena can be explained in this way, I do not think that any other principles are either admissible or desirable in physics.

In Principles of Philosophy [Part 4, article 187] he stated that

I have deduced the causes - which I believe to be quite evident - to these and many other phenomena from principles which are known to all and admitted by all, namely the shape, size, position and motion of particles of matter. And anyone who considers all this will readily be convinced that there are no powers in stones and plants that are so mysterious, and no marvels attributed to 'sympathetic' and 'antipathetic' influences that are so astonishing, that they cannot be explained in this way.

Descartes' success in propagating this belief played a major role in instigating the "fundamental shift in scientific thinking" that John Cottingham refers to.

15.1. *The Mind / Body Split*

Unfortunately, Descartes himself weighed down and hampered this shift in thinking because he always carefully inserted a qualification into his pronouncements. The quotation above from Principles of Philosophy demonstrates the subtle burden he placed on the scientific method, because it continues

In short, there is nothing in the whole of nature, nothing, that is, which should be referred to purely corporeal causes, i.e. those devoid of thought and mind, which is incapable of being explained on the basis of these self-same principles.

Here Descartes declared, in effect, that the world consisted of two kinds of elements. Because of his deeply-held religious beliefs, he found it necessary to postulate the existence of two entirely different kinds of matter: *res extens* and *res cogitans*. *Res extens* - extended substance - contains everything that we would today call 'matter'. It encompasses all the contents of the physical universe; everything that has shape and size, and that can thus extend in space in whatever direction.

On the other hand, Descartes believed that mind had very different properties. Minds consisted of *res cogitans* - thinking substance - and this had qualitatively different properties from 'matter'. *Res cogitans* stood apart from

the physical world as we can know it and so, by definition, the quantitative methods of science could neither analyse nor explain it.

Descartes did not invent the supposed split between the mind (or spirit or soul) and the body. The English theologian Don Cuppitt has pointed out that "St Paul says that 'whilst we are at in the body, we are absent from the Lord'. Just in case we haven't grasped the point, he adds that he would much prefer 'to be absent from the body, and present with the Lord'. Home is elsewhere and the body is what keeps us away from it. The body cuts us off from the Real" (Cuppitt, 1987, p160)

The dual nature of reality that Descartes posited therefore both arose from, and folded neatly into, his belief in an external God. However it also continued the Platonic belief that the physical world, far from being all that exists, should not even count as the most important part of all that exists. Descartes, like Plato, suggested that the most important part of reality, the part God loved best, would prove impervious to human calculation and exploration. Our discovery of *res cogitans*, like our awareness of Plato's ideal objects, made human beings different from all other animals and yet, because of its divine nature, it would lay forever beyond human understanding.

During the series of thought experiments which led him to declare that '*cogito ergo sum*', Descartes became convinced, not only that minds differed in kind from anything else, but also that minds could, in principle, exist without bodies. He wrote that

I saw that while I could pretend that I had no body, and that there was no world and no place for me to be in, I could not for all that pretend that I did not exist. I saw on the contrary that from the mere fact that I thought of doubting the truth of other things, it followed quite evidently and certainly that I existed; yet if I had but ceased to think, even if everything else I had ever imagined were true, this would have left me no reason whatever to believe I existed. From this I recognised that I was a substance whose whole essence or nature is solely to think, and which does not require any place, or depend upon any material thing, in order to exist.

(in Cottingham, Stoothhoff & Murdoch, 1985, p127)

A series of unanswerable questions arose almost immediately from this. How can we define or describe this second substance? What constitutes it? What form or forms does it take? How do the mind and body join or link? How does the non-physical mind exert any effect on the physical body? How do our physical sense organs pass information to our non-physical minds to tell them of perceptions that strike our sense organs, events that happen to our bodies, or actions that our bodies initiate?

Descartes felt acutely aware of these questions and the potentially fatal problems they posed for his project, but he could never offer final answers to more than one of them. To the question of where the mind and body joined, he argued that the pineal gland linked them. Even if this had proved correct, which it did not, it would have merely sidestepped the main issues, since suggesting a site for the meeting of mind and matter cannot provide an adequate substitute for explaining how the meeting of physical and non-physical might actually work.

In his later writings Descartes tried to make clear that he regarded human beings,

in their everyday life-world, as necessarily comprising a mind and a body. However he continued to believe that "the certainty and truth of all knowledge depends uniquely on my awareness of the true God, to such an extent that I was incapable of perfect knowledge of anything else until I became aware of him", and he continued to believe that, because God had the divine capacity to separate minds from bodies (since, by definition, God possesses the capability to divide anything), then "nothing else belongs to my nature or essence except that I am a thinking thing".

In the Sixth of the Meditations Descartes concludes that

I have a clear and distinct idea of myself, in so far as I am simply a thinking, non-extended thing, and on the other hand I have a distinct idea of body, in so far as this is simply an extended non-thinking thing. And accordingly it is certain that I am really distinct from my body, and can exist without it.

Descartes satisfies himself, then, that the essence of humanity comprises a duality and moreover a split duality; by which I mean a duality comprised of two separable substances of different kinds, and of potentially different importance in the eyes of God, rather than a duality formed from a single phenomenon with two aspects (such as the days and nights that together comprise the daily cycle).

15.2. *Descartes' Three Claims*

For our purposes we may note that Descartes does three things. Firstly, he makes a claim that duality resides at the heart of all human experience. Secondly, as a consequence of this, he underwrites the Platonic dualities at the heart of medieval Christianity and permits them to continue unanalysed alongside the new scientific method by placing them under the ineffable laws of *res cogitans*. Thirdly he enunciates additional specific dualities which will serve to further confuse and bedevil future inquiry.

Descartes not only posited the division between mind and body as a divinely wrought schism; he also declared the existence of a clear division between thought and feeling. In a letter to the French ambassador in Sweden, for example, Descartes makes a careful distinction between "the love that is purely intellectual or rational, and the love which is a passion". He writes that he regards the latter as "nothing more than a confused thought aroused in the soul by some motion of the nerves".

Although Descartes certainly did not oppose passion per se, and indeed wrote that "pleasures common to body and soul depend entirely on the passions", he nonetheless regarded the chief benefit of wisdom as "teaching us to be masters of our passions and to control them with such skill that the evils which they cause are quite bearable". For him, as for all those who followed him, the intellect clearly outranks the emotions and, used properly, offers the ability to keep them in check.

In this way Descartes not only divided mind and body; he then extolled the higher position of the mind over the animalistic body. Finally, he divided thinking and feeling, logic and passion, in both cases regarding the former as the rightful master of the latter.

15.3. Russell's Paradox

From this starting point, Descartes ruled some of the most vexing questions about human nature off-limits to the new scientific method. In efforts to address these questions, and to explore what seemed, in principle, incapable of being analysed, philosophers conjured a series of problems and worries out of thin air. As a result, A.N. Whitehead claimed,

modern philosophy has been ruined. It has oscillated in a complex manner between three extremes. There are the dualists, who accept matter and mind as on equal basis, and the two varieties of monists, those who put mind inside matter, and those who put matter inside mind. But this juggling with abstractions can never overcome the inherent confusion introduced by the ascription of misplaced concreteness to the scientific scheme of the seventeenth century.

(Whitehead, 1927)

We might date the culmination of this "juggling" to Bertram Russell's discovery in 1901 that possibly insoluble 'paradoxes' lay hidden within naive set theory. Russell's journey from belief to dismissal marks the beginnings of a more general break with Descartes' legacy. At the start of his career Russell believed in the paradoxes he had discovered as genuine and objective paradoxes. He insisted that they represented problems in the real world, and that they urgently needed resolving. By the end of his career he regarded them as nothing more than nonsense. During the period in which he gradually changed position, the work of his student Ludwig Wittgenstein, of Martin Heidegger, and of many others, had begun to signal the beginning of the end of Descartes' baleful influence.

Russell had begun his career as a Platonist who felt that mathematics revealed eternal truths. He wrote that

I hoped that in time there would be a mathematics of human behaviour as precise as the mathematics of machines. I hoped this because I liked demonstration, and at most times this motive outweighed the desire, which I also felt, to believe in free will.

(quoted in Monk, 1997)

The paradox that exercised Russell so much in his early career arises because naive set theory suggests the existence of two kinds of sets: 'normal' sets that do not contain themselves and 'abnormal' sets that do contain themselves.

We can make a simple example to demonstrate this as follows. We regard the set of red hats as normal, and assert that it does not contain itself, because we do not define the set of red hats as itself a red hat. On the other hand, we regard the set of "everything that is not a red hat" as abnormal, and assert that it does contain itself, because we do define the set of "everything that is not a red hat" as not itself a red hat.

The paradox arises when we try to ascertain whether S, the set of all normal sets, includes itself or not. If we define S as a normal set then it will be contained in the set of normal sets and will therefore be abnormal. If we define S as an abnormal set then it will not be contained in the set of normal sets - and will therefore be normal.

The more popular formulation of this paradox, which Russell claimed he heard from an acquaintance, concerns a town in which all the men look clean-shaven and "the barber shaves only those men in town who do not shave themselves". Using the previous example we might deduce that if the barber does not shave himself then he belongs in the set of men whom the barber shaves, and if the barber does shave himself then he belongs in the set of men whom the barber does not shave. Russell himself thought of the issue in this way, and he believed for many years that he could not complete the development of a coherent logic, the project with which he primarily concerned himself, until he (or someone else) had found a solution.

15.4. *Triadic Barbers*

If we look at these 'paradoxes' from a different perspective, we may decide that they do not actually reveal problems in external reality, as Russell initially supposed, but rather demonstrate limitations in some of our conceptual frameworks and more specifically in some of our linguistic structures. When I say this I mean to suggest something more than the fact that language can seem slippery, I mean to follow the suggestions of Korzybski and others (Korzybski, 1933; Bourland & Dennithorne, 1991) who propose that the structure of our language contains embedded assumptions, and that amongst these we might find a hidden bias towards the binary. We scarcely, if ever, notice this, any more than fish notice water, because this assumption forms part of the ground over which we move as figures, and the assumption therefore gets built into the view of our life-world that we absorb from infancy.

The ancient Greeks did not share our current world view, and they made very different assumptions about the relationships between the different aspects of their perceived world. The structure of their language clearly indicates this. Verbs in English, Swedish and Finnish, despite the major structural differences between these languages, all delineate activity through the use of active and passive voices. In English, for example, I can use the active voice regardless of whether or not the action explicitly involves another actor. I can say "I hit the policeman" and I can say "I ran for three miles". If I stand as the recipient of an action I use the passive voice. I can say "I was struck by lightning". A linguist might point out that the active voice has two forms: when a verb has a direct object ("I hit the policeman") we should describe it as transitive, and when a verb has no direct object we should describe it as intransitive. Our linguist might further note that active transitive verbs become intransitive in the passive voice, so that "Mary kisses Samantha" becomes "Samantha was kissed by Mary", while one cannot directly recast active intransitive verbs into a passive form.

So, if I happened to attack myself in a drug-induced psychosis, I might later describe this in English by saying "I hit myself in the face with the baguette until I was bruised and bleeding". This compound sentence achieves its effect by using a combination of active and passive voices.

Classical Greek differs in form from English (and Swedish and Finnish) in that it has three distinct voices: the active, middle and passive voices. This difference does not merely reflect pedantry and over-zealous categorisation by modern academics. It indicates a profound difference in the ways that ancient Greeks categorised their own actions. The middle voice (also sometimes termed the

reflexive voice) speaks of actions which the speaker does to herself, or of events through which she receives the consequences of her own actions. A drug-addled Ancient Greek, should one have existed, would therefore have used the middle voice to describe both the processes of self-hitting and of consequently self-receiving some bruises. (Smyth, 1920, p890)

We should note that the middle voice does not simply provide a grammatical convenience; it also embodies a different manner of dividing activity in the world, and thus a different mode of reflecting upon both activity and the world, and activity in the world.

In classical Greek, then, actions, and reflections upon the actions of others, could proceed along three paths, and from this starting point the paradox of the barber simply does not arise, because every man in town, including the barber, can perform three possible actions with regard to shaving. He can shave-others, using the active voice. He can self-shave, using the middle voice. He can receive-shaving (from others), using the passive voice.

Freed from the apparent grip of binary paradox, the barber can now happily shave-others who do not self-shave. The fact that he himself likes to self-shave simply has no bearing on whom in the town he does or does not shave-others - because, no matter how hard he tries, the innate structure of his language simply does not allow him to shave-others to himself under any circumstances.

We may note that, whatever else they may do, Russell's paradoxes serve as explicit formulations of the problems and limitations of applying binary logic to human affairs, and then imagining that the binary nature of classical logic reflects a 'natural' state of affairs; by which I mean that we could sensibly regard it as external to us and as pre-existing us.

Russell himself wrote that,

I think it is clear that you can only get around it by observing that the whole question whether a class is or is not a member of itself is nonsense, i.e. that no class either is or is not a member of itself, and that it is not even true to say that, because the whole form of words is just noise without meaning.

(Russell, 1985)

Russell raises two important points here. Firstly he suggests that we can simply change the perspective from which we perceive something in order to get round the limitations of the first perspective. In this particular case he suggests that we stop worrying about whether classes might include themselves, by declaring that this line of questioning makes no sense. Secondly he suggests that, in doing this, we should regard the question of whether a class can be a member of itself or not, in the end, as "just noise without meaning".

The middle voice of Ancient Greek should remind us that we do not necessarily need to divide our world into two, and that we may have very good reasons for not doing so. Indeed, the middle voice serves as an example of a social group or culture evolving a triadic rather than binary arrangement for an important aspect of their affairs.

The ancient Greeks regarded triadic arrangements as having a key role to play in human life and, in this regard, we may draw a continuous line between their thinking and modern dialectics, as conceptualised by Hegel. Dialectics formed a key part of ancient Greek philosophical discussions (Butler, 2011,

part 1) and took the form of an argument in favour of the question, an argument against, and a determination of the outcome. This process continued in medieval universities, where dialectic became one of the three components of the trivium (along with rhetoric and grammar). In the early nineteenth century Frederick Hegel defined the process as an explicitly triadic one in which dialectic comprised an abstract, a negative and a concrete. Heinrich Moritz Chalybäus subsequently reformulated this into the more familiar classification of thesis, antithesis, and synthesis.

15.5. Peirce and Triads

Charles Sanders Peirce, the American philosopher and scientist, spent much of his life developing triadic systems for logic and scientific research; because he came to believe that one cannot properly describe any act that involves human agency within a binary system. More specifically, he denied that a sentence such as "Bill gives the book to Terry" can mean carry the same meaning as the two sentences "Bill gives the book" and "Terry gets the book", because the original sentence contains three elements, all of which have specific relationships to each other in the action the sentence describes.

Peirce argues for the existence of distinct qualities of firstness, secondness and thirdness that arose from the triadic nature of the world. "Peirce insisted that any relation between two entities, be they persons, ideas, or natural forces, could not be understood in simple dyadic terms, but always required a third element, the framework or structure of meanings, truths, laws, assumptions and expectations within which the relationship occurs. Broadly speaking, the "third" is the structural framework that governs the relation, and, importantly, that may be an emergent structure that is called out by the exigencies of the relation." (Beauchamp, 1998)

Peirce himself described it thus:

By the third, I mean the medium or connecting bond between the absolute first and last. The beginning is first, the end second, the middle third. The end is second, the means third. The thread of life is a third; the fate that snips it, its second. A fork in a road is a third, it supposes three ways; a straight road, considered merely as a connection between two places is second, but so far as it implies passing through intermediate places it is third. Position is first, velocity or the relation of two successive positions second, acceleration or the relation of three successive positions third. But velocity in so far as it is continuous also involves a third. Continuity represents Thirdness almost to perfection. Every process comes under that head. Moderation is a kind of Thirdness. The positive degree of an adjective is first, the superlative second, the comparative third. All exaggerated language, "supreme," "utter," "matchless," "root and branch," is the furniture of minds which think of seconds and forget thirds. Action is second, but conduct is third. Law as an active force is second, but order and legislation are third. Sympathy, flesh and blood, that by which I feel my neighbor's feelings, is third.

(Peirce, 1931, III, 2, C, 1)

A century later, the British mathematician and philosopher Daniel G Bennett took up a very similar argument. In *The Dramatic Universe*, he "worked to find a way to identify and understand the underlying pattern and structure of a particular thing -- be it an object, action, relationship, situation, process, or whatever -- by turning to the experienced quality of number". (Seamon, 2008) In this schema he too related "action and relatedness" to the triad, to thirdness. In fact, Bennett writes, "without an understanding of the triad, it is difficult to make any real change in the world". (Bennett, 1993, p36)

Triads became central to Peirce's way of perceiving the world, and his work contained many triadic schema. His scheme of logic, for example, admitted of "three canons of reasoning, to wit: deduction, induction and abduction (the latter term alternatively baptized retroduction or hypothetic inference)... He spells out the differences, which he claims to have "always" (since the 1860s) recognized: first, deduction "which depends on our confidence in our ability to analyze the meaning of the signs in or by which we think"; second, induction "that depends upon our confidence that a run of one kind of experience will not change or cease without some indication before it ceases"; and, third, abduction "which depends on our hope, sooner or later, to guess at the conditions under which a given kind of phenomenon will present itself". (Eco & Sebeok, 1983, p1)

15.6. Triadic Thinking

Others (cf Wilson, 1990) have since shown that we may view many dyads better from a triadic perspective. "Yes" and "No", for instance, do not form a pair that someone must choose between, because in reality they always form two corners of a triangle, with the third corner labelled "Maybe" or "I don't know". Indeed, the Scottish legal system reflects the inherently triadic nature of decision-making by permitting a jury to return one of three verdicts: guilty, not guilty, or not proven.

Robert Anton Wilson has pointed out that we spend much of our time in a state of "Maybe", even if we claim otherwise. For example, as we watch someone walking towards us we may wonder for some time whether we see our friend Kevin in the distance, or just someone who looks a bit like him, before we finally reach a decision and act upon it.

We might note the influential paper *The Strength of Weak Ties*, from the *American Journal of Sociology*, which argues, from a different starting point to Peirce, that we should view interpersonal relationships as essentially triadic. "If strong ties A-B and B-C exist, and if B and C are aware of one another, anything short of a positive tie would introduce a "psychological strain" into the situation, since C will want his own feelings to be congruent with those of his good friend A, and similarly for B and his good friend A." (Granovetter, 1973. p1362)

Triads seem to have exerted a little noticed attraction on the structure of religions, too. Christianity, although cited as an example of monotheism, has a holy trinity at the centre of its doctrines. The Catholic Church (along with many Lutherans and some Anglicans) has also expanded the dualistic concept of Heaven and Hell into a triad with the addition of Purgatory. In Islam, believers use a base-three system of counting while praying, to keep track of counting Tasbih to 99 or to 100 on a single hand.

Finally, we may note that triadic relationships occur frequently in nature or, more

exactly, in our relationships with nature. We can define primary colours, for example, in many different ways, but every system defines precisely three. Artists traditionally claim red, yellow and blue as primary colours. Printers use cyan, yellow and magenta. Computers and other digital equipment use red, green and blue, while Autochrome Lumière, an early colour photography process, used orange, green and violet.

Of more direct relevance to the arguments presented here, Sigmund Freud's metaphorical division of consciousness involves three elements: the ego, the super-ego and the id. Eric Berne's more recent schema of Transactional Analysis, which we will consider in the next chapter, also incorporates a triadic division of the mind: into Parent, Adult and Child.

Descartes, we may conclude, introduced a pernicious dualism into the scientific method which, perhaps ironically, served to blind us to its own essential arbitrariness. Even today "yes" or "no" often seems like a reasonable choice to give somebody, and may actually strike that somebody as their only two options. This offers a small, everyday example of a much larger and more pervasive phenomenon which we will need to bear in mind as we consider the nature of human consciousness.

CHAPTER 16: WHO DOES THE DRIVING?

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Descartes proposed that an "I" consists of a "thinking, non-extended thing" housed in a body that operates as "simply an extended non-thinking thing". Today nobody accepts Descartes' hypothesis that the mind and body exist separately and communicate somehow through the pineal gland which, subsequent research has shown, actually functions to produce melatonin, a hormone that affects wake/sleep patterns and seasonal dispositions. Many people, however, continue to believe that the mind and body exist separately and therefore join somewhere, and may therefore decouple, as a locomotive decouples from a set of carriages.

This kind of belief appears not simply as "common sense": it fuels many current beliefs in the possibility of transhumanism and cryogenics. Ray Kurzweil, for example, has claimed in *The Singularity Is Near* (Kurzweil, 2005) that by the middle of the twenty-first century, "humans will develop the means to instantly create new portions of ourselves, either biological or nonbiological," so that people can have "a biological body at one time and not at another, then have it again, then change it." In addition, he argued that "software-based humans" will "live out on the Web, projecting bodies whenever they need or want them, including holographically projected bodies, foglet-projected bodies and physical bodies comprising nanobot swarms."

However, much current research suggests that our feeling that we possess a single, unified consciousness acting as the controller of a surrounding body provides us with nothing more than a grand illusion. This belief provides an interesting and pervasive example of what Daniel Dennett has termed the 'intentional stance' and it appears to have little more justification than the ancient world's belief in a panoply of gods and goddesses.

16.1. *The Self Has Not Always Existed*

The self has not always existed. It appeared as a consequence of the invention of writing. As Ivan Illich and Barry Sanders observe,

most epochs got along without a self. There was no self in epic times... In oral cultures, one may retain an image of what has been - yesterday, at the time of the full moon, or last Spring, but the person then or now exists only in the doing or the telling, as the suffix comes to life only when it modifies a verb.

(Illich & Sanders, 1988, p72)

In the same vein Marshall McLuhan notes that one "of the strange implications of the phonetic alphabet is private identity. Before phonetic literacy, there had been no private identity. There had only been the tribal group. Homer knows nothing about private identity". (McLuhan, 2003, p229)

Our current feeling of selfhood arises out of language because every time we ask the question "am I thinking?" we will find that, at that moment, we can answer "yes"; and because every time we ask the question "what am I thinking about?" we will come up with an answer that satisfies us. However, it now seems that the very process of asking the questions causes us to make up the answers, and that when we don't ask "what am I thinking about now?" then we may not in fact think about anything.

We might conclude from this that we do not 'have' a consciousness that interacts mysteriously with a body. Rather, humans have evolved so that we can have higher order thought activities: we can think about thinking, we can reflect on our reflections, and we can feel something about the feelings we have, and about the feelings that others tell us that they have.

Our conscious activities enable us to have higher-order thoughts, whenever we need to reflect and make judgements. We do this when our immediate perceptions provide us with a dilemma; when, for example, we do not receive enough information to tell whether we can see a large the object in the distance or a much smaller object much closer to us. We can then use these judgements to settle our doubts and provide ourselves with a provisional framework for action. Charles Sanders Peirce put forward a very similar argument in the late nineteenth and early twentieth centuries, suggesting that the purpose of thought hinged upon the creation and maintenance of habit. He maintained that all questioning began with doubt and ended by fixing a belief: "the soul and meaning of thought...can never be made to direct itself to anything but the production of belief... The essence of belief is the establishment of a habit; and different beliefs are distinguished by the different modes of action to which they give rise. Thought in action has as its only possible motive the attainment of thought at rest". (in Buckler, 1940, p27) Thought, then, has the production of "habits of action" as its primary purpose. Indeed Peirce deems it impossible "that we should have an idea in our mind that relates but to conceived sensible effects of things. Our idea of anything is our idea of its sensible effects". (in Buckler, 1940, p31)

Thought, in Peirce's terms, has the purpose of creating effects in the world, often (but not always) in the form of bodily activity. This activity may seem large or small, important or trivial. I feel hungry, for example. I think briefly about this and decide I would like something sweet. I walk to the fridge and open

it. The process begins and ends with the body, but my thinking informs the specific outcome. Opening the fridge, I become conscious of the various possibilities available, and the need to make a choice. I have to make a judgement and, after a suitable pause, I opt for the fudge ice-cream rather than the cold pizza slices.

The body, as Shaun Gallagher points out,

sets the stage for action. Perhaps the claim should be a stronger one. Your body is already acting 'before you know it'. Certainly there is evidence that indicates one's body anticipates one's conscious experience. I reach to pick up a glass. Before I am aware of it - if I ever do become explicitly aware of it - my hand shapes itself in the best way possible for purposes of picking up the glass. If I had reached for some differently shaped object, I would find that my hand had already shaped itself accordingly. This is a general rule followed by the sensory-motor body. It anticipates its encounters in both instrumental and expressive contexts. Even in my encounters with others, prenoetically before I know it, I have a sense of how it is with them.

(Gallagher, 2005, p237)

Knowing this we have to take only a small step to realise that our mental processes play only one (albeit very important) part in what we do, rather than dictatorially ordering our actions. Our reflections on what we have done serve to guide future activity by establishing mental habits. Neither our body nor our mind acts forcibly upon the other; rather, when we function well, both act in concert as components in an integrated physiological and psychological system. Our minds, lungs and kidneys all exert elements of control over our Being, but none of them play the role of the central scrutinizer, because that role has no place in the script.

We could view human awareness as comprising three levels.

Firstly, we possess a range of instincts that all mammals possess in some degree. If we put our hand into a flame accidentally we withdraw it without any conscious will. If we hear a sudden noise behind us, our heart beats and we look round. Cats and dogs, foxes and mice, also behave in this way.

Secondly, we have what Guy Claxton has termed an "undermind". (Claxton, 1998). He uses this term to refer to what we might otherwise call our unconscious mind, and he uses it because he rightly believes that "the unconscious" has become weighed down with various Freudian and pop-psychology references, including the view that regards it as less important, or subservient to, consciousness. The undermind forms the perceptual system that Dennett claims does most of our mental work. It drives the car while we engage in an animated conversation with the passenger. It controls the movements of the tennis player during a match. It makes intuitive decisions, and makes them successfully on the basis of percepts not concepts.

Thirdly, relating these two systems and arriving at judgements on the basis of their input, we have a narrative consciousness.

16.2. Benjamin Libet

To see why we should arrive at such an image of consciousness, we may start with the work of Benjamin Libet and his colleagues who, in the early

1980s, collected some of the most important and most challenging consciousness-related data. Scientists have interpreted the results of their experiments in several different ways; but they have never ignored them, since they seem to have direct, and counter-intuitive, bearings on "what it is like to be" us.

Libet's experiments followed up work by Kornhuber and Deecke, who had researched self-initiated actions in the brain, and had discovered in 1964 that an electrical potential becomes visible in the brain long before the subject initiates an action such as flexing a finger. They called this a "Bereitschaftspotential" or readiness potential. In trying to make sense of their results other researchers had speculated that somebody willing themselves to perform a physical action must proceed through three stages: firstly she must consciously will her action, or become conscious of her intention to act; secondly her brain must ready itself and thus the Bereitschaftspotential becomes visible; and thirdly, at the end of the sequence, the finger must obey the command and flex. Libet set out to find out the truth of this hypothesis.

In a series of cunningly designed experiments, Libet told patients, deliberately left conscious during invasive brain surgery, to flex their finger while looking carefully at a specially designed clock face. They were asked to say where on the dial the clock hand pointed to at the exact moment that they decided to initiate their action. In each case, Libet determined that the patient became aware of their decision to act approximately 300 milliseconds after the Bereitschaftspotential became visible, and thus the action had effectively begun in the brain.

Since doctors no longer routinely perform the type of invasive brain surgery that Libet's experiments relied on, current experimenters cannot exactly duplicate Libet's research. Nonetheless, almost all current experimenters agree that Libet undertook his experiments using sound methodology and carried them out with scrupulous care. If we exclude the possibility of catastrophic failures in the design of his experiments that have remained unnoticed for thirty years, we must accept that Libet clearly demonstrated that, contrary to our feelings about the order in which things happen, our decisions to carry out an action actually occur after our body has already started performing the action.

Very few researchers question these results although no real consensus has developed about what they might actually mean. Some determinists have used the results to suggest free will does not exist and that, in effect, our conscious mind sits in the passenger seat watching while our body steers us along predefined routes. Others have suggested that the results, while accurate in themselves, do not measure what Libet intended to measure. They suggest that decisions come in different types, and that these types form a hierarchy. The decision to move a finger therefore initiates a different and lesser kind of operation in our brain than the qualitatively more difficult decision involved in choosing between fudge ice cream and pizza.

Libet himself produced two explanations for what he observed. At first he suggested that the brain relocated the decision back in time with the result that, although the objective measurable order of events began with the movement and ended the subject's report that they had initiated it, the decision appeared to happen first at a subjective and experiential level. This struck many researchers and philosophers as wildly over-complicated and to raise many more problems than it solved. No experimental data existed to sug-

gest that such time-shifting actually happened, and even if someone could show that it did, this would not address the question of whether the subject had any genuine reason to feel that she had willed or somehow caused her finger to move.

Libet subsequently argued that the

conscious will (W) does appear 150 msec before the motor act, even though it follows the onset of the cerebral action (1W) by at least 400 msec. That allows it, potentially, to affect or control the final outcome of the volitional process. An interval 150 msec before a muscle is activated is the time for the primary motor cortex to activate the spinal motor nerve cells, and through them, the muscles. During this final 50 msec, the act goes to completion with no possibility of its being stopped by the rest of the cerebral cortex.) The conscious will could decide to allow the volitional process to go to completion, resulting in the motor act itself. Or, the conscious will could block or "veto" the process, so that no motor act occurs.

(Libet, 2004, p137-138)

For Libet then, our consciousness consists of our ability to decide not to do something that our body has already started doing. (This hypothesis became known, with various degrees of sarcasm as a belief in free won't.) He concludes his book with a lengthy imaginary dialogue with Rene Descartes, in which they discuss this topic in the context of a chat about free will, but reach no real conclusion. Citing experimental evidence that the order of activity in a subject asked to invoke a physical action appears as 1. Bereitschaftspotential, 2. conscious awareness and 3. physical action, Benjamin Libet tells Descartes that

Yes. Conscious intention does appear about 150 msec before the motor act. That leaves sufficient time for the conscious function to intervene in the process. It may provide a trigger to enable the volitional process to go to completion; however, there is no direct evidence for that. But there is evidence that the conscious will can stop or veto the process so that no act occurs. In such a case, free will could control the outcome. That it's with our feeling that we can control ourselves, something that ethical systems urge us to do.

(Libet, 2004, p220)

Rene Descartes replies: "I am glad to hear of that role for conscious will", before turning to discuss the possibility that "we really are automatons, completely subject to the natural physical laws of the universe".

In the concluding section of *MindTime*, Libet suggests that he differs from Descartes in the kind of duality that he believes in.

Neither self nor soul need be physical substances although they emerge from physical activities of nerve cells. The phenomenological feeling of their existence may be based on special kinds of neural processes. Feelings of self and soul can be destroyed by extensive neural damage, as in advanced Alzheimer's disease or in Creutzfeldt-Jacob disease. This may occur even when awareness has not been completely eliminated.

So, feelings of self and soul do require a sufficiently structured and functional brain.

(Libet, 2004, p237)

While still maintaining that a subjective duality exists, and asserting that this duality has a basis in reality, Libet nonetheless accepts that it may involve a kind of emergent process in which the "phenomenological feeling of their existence" derive from specific ranges of activity in the brain.

16.3. *Mind and Body, Body and Mind*

If we accepted this as true (at least provisionally), then we should expect to find it possible to treat physical and mental problems from both directions. Mental problems should prove susceptible to physical treatments and physical problems should prove susceptible to mental treatments. From the early years of the twentieth century evidence began to accrue in support of just such a hypothesis.

In 1910 F. Matthias Alexander published *Man's Supreme Inheritance*, the first book about what became known as the Alexander Technique. He aimed to assist people to reduce bodily tension and he saw the techniques he developed as "a re-education of the mind and body". From the beginning, adherents claimed that the changes that it affected in the body produced additional and very noticeable mental effects. In the introduction to Alexander's third book, *The Use of the Self*, for example, the educationalist John Dewey, an early enthusiast, claimed that the Alexander Technique "bears the same relation to education that education itself bears to all other human activities". (Alexander, 1932, p7)

Dewey came to believe that the mind and the body did indeed form a single entity, and that judgements formed solely by the intellect gave us, at best, an incomplete picture. He wrote that "if our habitual judgments of ourselves are warped because they are based on vitiated sense material -- as they must be if our habits of managing ourselves are already wrong -- then the more complex the social conditions under which we live, the more disastrous must be the outcome. Every additional complication of outward instrumentalities is likely to be a step nearer destruction: a fact which the present state of the world tragically exemplifies." (Alexander, 1932, p8)

Interestingly Dewey frames his arguments in terms of their educational potential, and indicates that he has come to believe that education too cannot rely simply upon the intellect if it wishes to achieve its goals. In this he anticipates many of the arguments that we will encounter later.

Education is the only sure method which mankind possesses for directing its own course. But we have been involved in a vicious circle. Without knowledge of what constitutes a truly normal and healthy psychophysical life, our professed education is likely to be mis-education. Every serious student of the formation of disposition and character which takes place in the family and school knows--speaking without the slightest exaggeration--how often and how deplorably this possibility is realized. The technique of Mr. Alexander gives to the educator a standard of psychophysical health--in which what we call morality is included.

(Alexander, 1932, p8)

Other physiological approaches developed during the same period shared a belief that we had ignored the unity between all aspects of the human being in favour of an erroneous privileging of our rational and intellectual capacities. Ida Rolf developed Structural Integration - a ten-hour programme that became later known simply as Rolfing. In this she principally concerned herself with balancing the human body; with realigning the muscles to ensure that people worked with gravity not against it. In an article written for the *Psychotherapy Handbook*, Rolf explicitly made this point when she described Structural Integration as "an approach to the personality through the myofascial collagen components of the physical body". (quoted in Rolf, 1978)

Rolf too argued that education should concern itself with the whole person and not just the small parts governed by rationality. "Rolfers are integrating something; we are not restoring something. This puts us in a different class to all the other therapists that I know of. It takes us out of the domain designated by the word 'therapy, and puts us into the domain designated by the word 'education'. It puts our thinking into education: how can we use these ideas behind Rolfing? How do we put a body together so that it's a unit, an acting, efficient energy unit?" (Rolf, 1978)

Peirce and Dennett would almost certainly agree that we cannot distinguish 'thinking' from internalised talking, and equally that we cannot distinguish 'talking' from externalised thinking. If we pause to reflect we may recognise that this accords with many aspects of our own experience. On occasion, for example, we may first discover what we believe about a topic when we hear ourselves define our position in an unrehearsed conversation.

We often experience similar relationships between thought and bodily action. We seem to find out what we think, or how we feel, at the point when a bodily action of speech or movement draws it to our attention. We find ourselves yawning and only then realise that we must feel bored or tired. On the other hand, we very rarely, if ever, stop to deliberate about something that we have seen or heard, decide after a pause for consideration that it amuses us, and then burst out laughing. Instead we find ourselves laughing before we have thought either about what has amused us, or why we find ourselves amused. (This can, of course, mean that, at times, we find ourselves scolded by others for laughing at what they deem an inappropriate moment.)

We might now agree that much thinking activity takes the form of internalised talking (sometimes as monologues and sometimes as imaginary dialogues), without agreeing that all thinking takes this form. However, research undertaken with flotation tanks suggests that we may have nothing more than talk at our disposal (cf Lilly, 1977; Kjellgren, 2008; Kelly, 2011). John Lilly originally invented the flotation tank in order to test the assertion that without any kind of stimulation the brain would simply shut down or go to sleep. Since then scientists have used it for various experiments, both mental and physical (Kjellgren, 2008), and sports people, therapists and teachers of yoga and relaxation have used it for many other purposes (Hutchinson, 2003).

In isolation tanks the sensory organs receive almost no external input: the user lies in complete silence, complete darkness, and in an environment kept at exactly body temperature, and the salt solution in which the user lies balances the body against gravity. In this environment Lilly found that, far from shutting down, the brain continued, albeit in a different way. In the environment of an isolation tank, cut off from external stimuli, one can only remember, think internally generated thoughts, or project internal data onto

an external environment of one's own making. These projections can take the form of visual or auditory hallucinations, and people may then experience them as external event. As one of the interviewees in the 2008 Swedish study reported, "I hear music, but there was no music, but I heard music." (Kjellgren, 2008)

Participants report feelings similar to those they might feel at the point just before they normally drift off to sleep. Thoughts pass through their minds without becoming fully-formed or logically connected chains. Importantly, for our purposes, people report this process of attenuation as a regression from conversation and monologue to chatter and overheard snatches. At every level mental activity in the flotation tank appears (or becomes remembered) as a form of verbalisation. Often, as in the quotation above, this becomes projected and happens subjectively somewhere "out there"; but nonetheless users report it as verbal. In profound isolation, when people have only their own internal workings to deal with, they still do not appear to come across any conscious mental activity that does not take the form of monologue, dialogue, conversation or half-heard whispers. Users who report hearing music, for example, report saying to themselves something like, "I can hear music. Where is it coming from?" Conscious mental activity, then, appears to consist of language all the way down.

This should not surprise us, since any alternative suggestion would involve the existence of another internal "language" in the brain: a mind-code of which we have no knowledge and about which we can find no evidence. Such an explanation would create an additional component for no obvious reason. We have no need to assume other than that sensory impressions, once they reach the brain, form the raw material for various parallel processes in the brain, and that once a process "wins" and thus gets "published", it gets published in the only language that we know (or in one of the only languages that we know): in the language that we currently use to self-talk and to talk-to-others.

I do not mean to suggest here that all brain activity takes place in English or Finnish, or whatever native language you have. I simply suggest that all conscious thoughts, all the judgements that we consciously make, arrive in a verbalised form, whether or not that remains internal or becomes spoken aloud. The activities of our underminds have no need of language since, by their very nature, they form brain activities of which we have no conscious awareness. When our hand shapes itself to reach for a cup our consciousness, as Shawn Gallagher pointed out, simply plays no part at all, and in such an action language has no part to play. If however we look intently at three upturned cups, because someone has told us that one of them covers a diamond, we will either make a quick intuitive choice, using our undermind, or we will pause for a long time, trying to recollect exactly how the magician moved the cups, in order to make a rational conscious decision. (In a situation like this, many experiments indicate that we will do better if we trust our instincts - our undermind - and make a quick intuitive "guess". (Claxton, 1998) Rational decisions will not always beat intuitive snap-judgements, and this will have an important bearing on later parts of the argument.)

As Alexander and Rolf clearly demonstrated, mental and bodily activities both have a temporal dimension, by which I mean that they display time-related properties. We can usually observe or predict bodily consequences. If I fall off a ladder today you may safely predict that I won't play football on Saturday.

If I carry heavy sacks all day without paying attention to my posture you might reasonably predict that I will get backache. If I do it for a much longer period others may warn that I will cause myself permanent damage. Both the actor and those watching her can observe and predict these kinds of consequences. The consequences of thought activity appear somewhat less easy to observe and predict for both the thinker and those around her.

On the other hand, while we regard it as normal for our thinking activities to resurface at a later date as memories, we seem less aware that the same applies to our physical activities. Ida Rolf gives a clear example when she discusses treating the psychologist Fritz Perls, who became completely unconscious during the seventh hour of treatment. "When Fritz came round, the first thing he said was something that indicated he knew perfectly well that he'd been unconscious. He said that he had once been injured by an anaesthetist in surgery... So, you see, when I got into his neck, I began to raise that whole trip." Rolf suggested that the traumatic memory of being injured under anaesthetic emerged spontaneously when she caused Perls to feel a similar sensation under treatment in the same part of his body. Perls did not will this and in fact he passed out before he became conscious of his reaction. Only afterwards could he piece all the plot elements together and offer a rational explanation to Rolf.

Alexander and Rolf both attempted to forge useful knowledge in an area not yet available to the scientific method, and their work reached many people. However their work did not enter what we might call the cultural mainstream, in contrast to the work of Freud and Jung, who concentrated almost exclusively on the mental. Both of their work entered into the cultural mainstream, as Steven Johnson has noted.

All of us walk around with an operative theory of how the mind works. It's rarely a unified theory, of course: typically our models are cobbled together out of different disciplines and intellectual periods. We'll dabble in Eriksonian psychology and say that someone is having an "identity crisis;" we'll borrow from modern neuroscience and describe ourselves as "very right-brain"; we'll steal a page from the mystics and refer to the Jungian unconscious or the personality traits revealed by astrology. But while our popular theories of the mind are mostly mongrels, they invariably share one common ancestor: Sigmund Freud.

Freudian assumptions about how the mind works remain ubiquitous in our culture -- so ubiquitous, in fact, that we seldom even think of their original provenance. Freud's ideas are like coins that have been so long in circulation that the insignia stamped onto their surface has worn off. When you allude to repressing a distasteful memory, or joke about a revealing slip of the tongue, or you talk through your memory of a traumatic event to lessen its hold over you, or analyze a friend's dream for its hidden meaning -- when you do any of these things, you're speaking the language of Freud, using a grammar of psychological categories and relationships that he largely invented.

(Johnson, 2004, p58)

Freud's theories changed and developed over the course of his life, and he never made the ontological status of this three main theories (or three main stages

of theorising) completely clear. Initially, for example, he appeared to regard the ego as a sense organ that dealt with both internal and external perception. Later, in 1926 in *The Question of Lay Analysis*, he claimed that it "is a hypothesis, like so many others in the sciences: the very earliest ones have always been rather rough. 'Open to revision', we can say in such cases . . . the value of a 'fiction' of this kind . . . depends on how much one can achieve with its help."

Freud stated explicitly that, in thinking about the psychic apparatus, we should "leave entirely to one side the material line of approach", and not concern ourselves with how, or whether, his theoretical model had any physiological counterpart. He did not intend us to believe that three locatable areas of the mind actually existed: that the ego, for example, had the same qualities of reality as the appendix or liver.

Freud developed the triadic notion of the ego, the id and the superego as a diagrammatic tool for modelling individual human behaviour onto theoretical templates. In their absorption into popular culture, however, many people seem to have ignored the hermeneutic nature of Freud's probes and misunderstood the ego, id and superego as actual 'things'; possibly as an updated, secular alternative to the soul. (At the time of writing a website, eoutofego.com, currently offers an e-book that you will want after you "imagine your life if your EGO didn't get in the way!") Although Freud wrote that religion "is an illusion and it derives its strength from the fact that it falls in with our instinctual desires." the underlying structure of his diagrammatic world contains many quasi-religious elements that lay in the ground only slightly below the surface. He describes the id, for example, as an

inaccessible part of our personality, what little we know of it we have learned from our study of the Dreamwork and of the construction of neurotic symptoms, and most of that is of a negative character and can be described only as a contrast to the ego. We approach the id with analogies: we call it a chaos, a cauldron full of seething excitations. . . . It is filled with energy reaching it from the instincts, but it has no organization, produces no collective will, but only a striving to bring about the satisfaction of the instinctual needs subject to the observance of the pleasure principle.

(Freud, 1933, pp105-106)

J. Allan Hobson notes that, in constructing his psychoanalytical model, "Sigmund Freud picked up the distorted message idea and acted as the high priest whose psychological skills could tell the patient things he would not otherwise know about himself". (Hobson, 2002, p16) He also points out that while "Freud was an avowed atheist - his rejection of religion was practically phobic - he fell back into the hidden agency idea with his belief in a dynamic unconscious mind that was in constant competition with consciousness. (Hobson, 2002, p17)

If we read, and try to understand, Freud's work as a powerful narrative, rather than a description of "what it is like to be" us, we will find that it describes a fallen world in which life consists of an endless struggle against primitive urges that seek to drag us down in what we could fairly describe as a secular caricature of the medieval idea of sin. In this story, we live our lives as battles for which we have received no proper preparation, and over which

we can exercise little control. The very act of being born disadvantages us by throwing us into relationships with our mothers that will almost certainly prove unhealthy, and from which we will have to try to recover. Moreover this process mainly takes place in another realm to which we can have no direct access. Our id will remain forever closed to us, except possibly for the intervention of a therapist who will seek indirect access through the kingdom of Dreamwork.

Freud's schema may seem triadic from some perspectives - it divides the self into the ego, superego and id - but at root it describes the mind dualistically: as a battle between the rational and conscious mind and the dangerous and unknowable unconscious. This diagnosis continued the split emphasised by Descartes, while dressing it in different clothing.

Psychologists and psychotherapists did not universally accept this doctrine. Many began to view the mind as a mere part of a holistic body-mind entity. This led to renewed interest in Rolfing and the Alexander Technique, and an increasing interest in Gestalt Therapy, which Fritz Perls & Paul Goodman had introduced in 1951. Perls, who described "the aim in therapy, the growth aim" as one in which you should "lose more and more of your 'mind' and come more to your senses" (Perls, 1976), had trained as a Freudian psychoanalyst in Berlin and Vienna, but had begun to differ from Freud in several important ways. While he accepted that most people suffered from the existence of hidden beliefs or habits, of which they remained unaware, he did not believe that these resulted from a general universal psychic apparatus, and nor did he believe that psychoanalysts should treat them by poking around in the patient's childhood memories. He came to believe instead that treatment should take experiential forms: that patients should act and experience, rather than merely talk about acting and experiencing. He therefore began Gestalt Therapy as a set of techniques that he regarded as existential-phenomenological therapy. Perls adopted a saying of Martin Buber as shorthand for its goals: "The I and thou in the Here and Now".

Perls stripped psychotherapy of the supernatural superstructure that Freud (and Jung, with his notion of the collective unconscious) had created. He did not insist that dreams held secret knowledge that an expert could interpret or that they served to hold repressed urges in check. Indeed, he scarcely talked about repression at all. Instead he talked about blockages, which developed individually and idiosyncratically, and could cease without any need to brood about dark deeds that may or may not have happened in the past. Perls believed in a direct connection between how we feel and how we act, to the extent that he would ask patients to monitor and work on their breathing and posture as part of their mental training. He argued, in effect, that if you learned to successfully adopt the body language of a relaxed and happy person, you would inevitably find yourself beginning to experience feelings of relaxation and happiness.

Perls argued that "in any biological or social-psychological investigation the concrete subject-matter is always an organism/environment field. There is no function of any animal that is definable except as a function of such a field. Organic physiology, thoughts and emotions, objects and persons, are abstractions that are meaningful only when referred back to interactions of the field." He points out an implication of this: all "perception and thinking are more than a mere response, and go out to as well as come from the field". (Perls, Hefferline & Goodman, 1951, p426)

Perls felt that we should see ourselves as an ongoing process rather than a fixed entity. This process incorporated both our bodily and our mental processes, and privileged neither. Our problems could begin anywhere within our internal environment and extend over the whole terrain. He offered a series of techniques for identifying and overcoming problems that relied more on doing than thinking. He thought that people suffered from repetitive habits that they would benefit from dispelling.

Eric Berne developed a different, but complementary toolkit for people who found themselves drawn to, and sometimes controlled by, sets of mental habits that remained unknown to them. He developed the theory of Transactional Analysis, which regarded almost all human interaction as governed by socially learned games. Berne believed that, at the roots of human psychology, laid the need for people, especially children, to feel handled with care, to feel "stroked"; and he believed that emotional deprivation could have potentially fatal physical as well as mental consequences.

Like Freud, Berne thought that most people get damaged in childhood. Unlike Freud he saw nothing mysterious or supernatural about this process. Like Perls, he regarded it as a relatively simple affair that arose from lack of knowledge, lack of ability, lack of time, or a mixture of these. Berne regarded all people as exhibiting

three types of ego states. (1) Those derived from parental figures, colloquially called the Parent. In this state he thinks, feels, acts, talks and responds just as one of this parents did when he was little... (2) The ego state in which he appraises his environment objectively, and calculates its possibilities and probabilities on the basis of past adult experience, as called the Adult... (3) Each person carries within a little boy or little girl who thinks, feels, acts, talks and responds just the way he or she did when he or she was a child of a certain age...The Child is not regarded as 'childish' or 'immature' which are Parental words, but as 'childlike', meaning like a child of a certain age, and the important factor here is the age, which may be anywhere between two and five years in ordinary circumstances.

(Berne, 1972, p30-31)

In Berne's view most human interaction becomes formalised, and he mapped these formalised interactions onto a series of games. "From the present point of view, child-rearing may be regarded as an educational process in which the child is taught what games to play and how to play them" (Berne, 1964, p52). In *Games People Play*, Berne lists thirty six games, giving a detailed exposition of each one and its likely consequences. They range from "Let's You and Him Fight" and "I'm Only Trying to Help You" to "Alcoholic", "See What You Made Me Do", and "Now I've Got You, You Son of a Bitch" (cf Berne, 1964).

Berne divided human interaction into three categories: activities, pastimes and games. In activities "the transactions are programmed by the material being worked with, whether it be wood or concrete or problems in arithmetic. Work transactions are typically Adult-to-Adult, oriented toward the external reality, that is, the subject of the activity" (Berne, 1972, p42). Pastimes "have a certain repetitive quality and are in the nature of multiple-choice, sentence-completion interchanges such as take place at cocktail parties where people do not know each other very well" (Berne, 1972, p43). Games

form "sets of ulterior transactions, repetitive in nature, with a well-defined psychological payoff" (Berne, 1972, p43). They occur in types of first, second, and third degree, which equals games deemed socially acceptable in the circle where people play them; games that the players would prefer to conceal but pose no real danger; and games that might seriously harm a person or relationship.

Berne describes all of these as ways of structuring time with the aim of avoiding boredom and maximising satisfaction. Additionally people have what Berne terms a "pre-conscious life script". Scripts develop from "childlike illusions that may persist throughout a whole lifetime, although in more sensitive, perceptive and intelligent people these illusions dissolve one by one leading to... various life crises". (Berne, 1972, p46)

Like Perls, Berne believes that a change in behaviour could arise through drawing a patient's attention to their current behaviour. He devised the matrix of games as a tool for capturing people's attention in a systematic way. Berne argued that games do not necessarily describe the totality of "what it is like to be" a person, because people have the ability to bring their scripts into consciousness, to analyse and pass judgement on them, and then to change them; and thus they can progress beyond games to autonomy, at which point they will discover that the "attainment of autonomy is manifested by the release or recovery of three capacities: awareness, spontaneity and intimacy" (Berne, 1964, p158).

16.4. *The Nature of Consciousness Forms the Key Issue*

In many ways, we can view the gradual move from the dualist split to an acceptance that the mind did not rule the body but rather played an important, though not necessarily leading, role in the lifework of process-like entity as a return to beliefs held previously, and held still in the East. Alan Watts explored these ideas from a spiritual perspective, with specific reference to Zen Buddhism. He proposed that we should always regard the world around us as ongoing processes rather than matter. He suggested that psychological

distress arises from what may be termed *maya*, to use the Hindu-Buddhist word whose exact meaning is not merely 'illusion' but the entire world-conception of a culture, considered as illusion in the strict etymological sense of a play (Latin, *ludere*). The aim of a way of liberation is not the destruction of *maya* but seeing it for what it is, or seeing through it. Play is not to be taken seriously, or, in other words, ideas of the world and of oneself which are social conventions and institutions are not to be confused with reality.

(Watts, 1961, p9)

Watts articulated the same view that Dennett would later arrive at. Our "normal sensation of self is a hoax or, at best, a temporary role that we are playing, or have been conned into playing - with our own tacit consent, just as every hypnotized person is basically willing to be hypnotized". (Watts, 1966, p18) In a way that recalled General Semantics (Korzybski, 1933) Watts argued

that our limitations arise in part from the structures of our language which encourage us to view ourselves as actors acting upon external stuff "out there". "The basic problem is to understand that there are no such things as things; that is to say separate things, separate events. That is only a way of talking. What do you mean by a thing? A thing is a noun. A noun isn't a part of nature, it's a part of speech. There are no nouns in the physical world." (Watts, 2004) We never "reach an agreement" because an agreement is an abstraction that has no geography. Instead, as part of a process, "we agree" or possibly if the process turns into an extended one, we finally "agree to agree". Buckminster Fuller made a similar point when he declared "I live on Earth at present, and I don't know what I am. I know that I am not a category. I am not a thing - a noun. I seem to be a verb, an evolutionary process - an integral function of the universe." (Fuller, 1970)

The suggestion that our view of ourselves contained fundamental flaws led to experiential work of a more or less scientific nature. John Lilly developed the isolation tank (Lilly, 1977) in order to explore what happened when sensory input became reduced to almost zero. Traditional wisdom suggested that madness would follow, but Lilly's experiments suggested that this fear arose from misunderstanding what the brain did and why it did it. In *The Human Biocomputer* (Lilly, 1967), based on a lengthy series of experiments using psychoactive chemicals in floatation tanks, Lilly makes some of the earliest attempts to conceive the brain in terms of programming. Unlike later researchers he does not claim that "the brain is a computer", merely that, for the purposes of the research he assumes it to have the characteristics of one. He argues that the "human computer, within limits yet to be defined, has 'self-programming' properties, and other persons-programming properties" (Lilly, 1967, p6). "The 'consciousness program' itself is expandable and contractible within the computer's structure within certain limits" (Lilly, 1967, p16). In these experiments, and the lengthy documentation that followed (Lilly 1967, 1972, 1975, 1977), Lilly provides experimental evidence to support the theories espoused by Perls and Berne, and offers a link to the views of consciousness that artificial intelligence and cybernetics would later develop further.

Timothy Leary, another proponent of direct experimentation on consciousness, also drew early parallels between consciousness and digital computers, and specifically on the mutual effects each might have on the other. In 1987 he wrote that "I was quite blind to the fact that the new young generation would grow up automatically processing digitized thoughts on home electronic screens. In short, I understood PSYber-world, but not CYBer-world. I had extensively explored the inner worlds of consciousness, navigated the limitless psy-universe of the brain. But I had no access to and understanding of the Info-world, created by the electronic technologies which were just about to change us from mechanical-book people to quantum screen people." (Leary, 1987, p11)

This work all supports the view that we should not view human consciousness as a fixed entity; that we should regard thinking and talking as functionally identical; that we do indeed learn to make our own experiential realities - what Heidegger calls our *umwelt* - which we cannot properly communicate even to ourselves; and that this process of becoming ourselves grows out of, and revolves around, telling and being told stories.

Understanding that we develop by telling and hearing stories (sometimes in the

guise of formalised games with strict and limiting rules), then we might suspect that we have our conceptions of ourselves and others backwards. The psychologist Kenneth Gergen, for one, would agree. He has argued that we need to develop inherently social conceptions of ourselves, and that, as a result, "the search for self is largely misconceived. It does not yield knowledge in the traditional sense, but rather, provides a means of rendering action socially intelligible" (in Mischel, ed, 1977, p139). The "fact the emotions are singled out as part of oneself, the variety of emotions that we believe to exist, and the conditions under which they are attributed to self, are all based on socially derived conceptualization" (in Mischel, ed, 1977, p164-165).

Gergen argues that social facts have a negotiated character that depends not on their intrinsic qualities but on "the development of a community of agreement" (Gergen, 1993, p81). He takes up the position adopted by Jurgen Habermas, that "in their underlying epistemology, positivist formulations obliterate the critical issues of social ethics... Thus, with fundamental questions of values obscured, the critical problem of ends is replaced with the relatively superficial concern with means; society is primarily left with problems of technical application" (Gergen, 1993, p86).

If it seems, then, as though we must see our conscious selves as inherently social processes subject to continuous renegotiation, and internalised as we author (or collate) our individual narratives, we may wonder about the nature of the social forces that operate upon us. If we no longer appear to ourselves as individuals having ideas inside the privacy of our own heads which we may then choose to broadcast, but as bounded but permeable entities acting primarily as receivers, then we may very well wonder where the transmissions come from.

To understand this we will need to look at some aspects of the theory of evolution.

CHAPTER 17: THE CONSCIOUSNESS DILEMMA

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The philosopher David Chalmers has defined something that he terms the 'hard problem'. He has explained that

There is not just one problem of consciousness. 'Consciousness' is an ambiguous term, referring to many different phenomena. Each of these phenomena needs to be explained, but some are easier to explain than others. At the start, it is useful to divide the associated problems of consciousness into 'hard' and 'easy' problems. The easy problems of consciousness are those that seem directly susceptible to the standard methods of cognitive science, whereby a phenomenon is explained in terms of computational or neural mechanisms. The hard problems are those that seem to resist those methods.

(Chalmers, 1995, p200)

He defines the hard problem of consciousness as "the problem of experience".

He suggests that when "we think and perceive, there is a whirl of information-processing, but there is also a subjective aspect."

17.1. What is it like to be a bat?

In 1974 Thomas Nagel produced an influential definition of this subjective aspect in an article entitled *What is it like to be a bat?* In this he broadly agrees with Chalmers, stating that consciousness "is what makes the mind-body problem really intractable. Perhaps that is why current discussions of the problem give it little attention or get it obviously wrong". (Nagel, 1974, p435)

He argues that we cannot reduce subjective experience to a description of the physical processes that evoke it, and that if "physicalism is to be defended the phenomenological features must themselves be given a physical account". By way of illustration he uses bats as an example. He says that "I assume we all believe that bats have experience. After all they are mammals". The essence of this belief, he argues, "is that there is something that it is like to be a bat". However the sonar by which bats locate themselves operates in a fundamentally different way from any sense apparatus humans possess and so "there is no reason to suppose that it is subjectively like anything we can experience or imagine. This appears to create difficulties for the notion of what it is like to be a bat. We must consider whether any method will permit us to extrapolate to the inner life of the bat from our own case, and if not, what alternative methods there may be for understanding the notion".

Nagel concludes his paper with a suggestion that, to tackle the problem he has defined one might need to "devise a new method - an objective phenomenology not dependent on empathy or the imagination". He suggests that we "would have to develop such a phenomenology to describe sonar experiences of bats". (Nagel, 1974, p448)

Chalmers, in turn, references Nagel's idea that "there is something it is like to be a conscious organism". He argues that this

subjective aspect is experience. When we see, for example, we experience visual sensations: the felt quality of redness, the experience of dark and light, the quality of depth in a visual field. Other experiences go along with perception in different modalities: the sound of a clarinet, the smell of mothballs. Then there are bodily sensations, from pains to orgasms; mental images that are conjured up internally; the felt quality of emotion, and the experience of a stream of conscious thought. What unites all of these states is that there is something it is like to be in them. All of them are states of experience.

(Chalmers, 1995, p201)

Chalmers suggests that subjective experience - "what it is like to be" you or me - presents us with a very different kind of problem to the 'easier' problems, such as "the ability to discriminate, categorize, and react to environmental stimuli" or "the deliberate control of behavior". Indeed Chalmers suggests that "what it is like to be" something forms the core of what we mean when we talk about consciousness, as opposed to mere awareness: "an organism is conscious if there is something it is like to be that organism, and a mental state is conscious if there is something it is like to be in that state." (Chalmers, 1995, p201)

Chalmers states this as a philosopher, and for much of the past four centuries philosophers and theologians have taken subjective experience and the 'problem' of consciousness to lie within their domains. Until the middle of the last century researchers uncovered little empirical evidence that might point towards a solution, or even indicate the general direction that we should look in order to find a solution. In the past fifty years, however, neurologists and psychologists have begun to obtain empirical data that appears to indicate clear correlations between subjective thought processes and objectively observable activity in the brain. Philosophers can no longer confine themselves to thought experiments of the kind that Descartes engaged in, and which continue today in discussions about bats and worlds full of zom-

bies, but must now take account of some quite surprising data. We may now have the ability to test Chalmers's assertions.

17.2. *Dennett in the Cartesian Theatre*

The philosopher Daniel Dennett agrees with Libet's idea that being conscious consists of experiencing the results of emergent processes in the brain. He arrives at this conclusion by providing the most parsimonious explanation available for the strange and counter-intuitive order of events observed by Libet. He recommends, in effect, that we simply take the results at face value. He can recommend this because he believes that most people have inherited from Descartes the idea of consciousness as a kind of "Cartesian Theater", and that he can show, both logically and experimentally, that in reality consciousness simply does not work in that way.

Dennett defines the Cartesian Theater as a view of the mind that regards

perceptual systems as providing 'input' to some central thinking arena, which in turn provides 'control' or 'direction' to some relatively peripheral systems providing bodily motion. This central arena is also thought to avail itself of material held in some relatively subservient areas of memory.

(Dennett, 1991, p39)

Dennett suggests that

the very idea that there are important theoretical divisions between such presumed subsystems as 'long-term memory' and 'reasoning' (or 'planning') ... prevents theorists from seeing that their models still presuppose that somewhere, conveniently hidden in the obscure center of the mind/brain, there is a 'Cartesian Theater', a place where 'it all comes together' and consciousness happens.

(Dennett, 1991, p39)

He argues that the real problem lies not in the fact that "I" decide something after "my body" has already begun doing it, but in the fact that I begin my analysis by imagining that I contain both an operator and a subject that gets operated upon; and that I therefore contain more than, and exist somehow separated from, my body.

Dennett approaches Nagel's assertion that there must "be something that it is like to be" a bat by using the heterophenomenological method, described earlier, to attack its logical basis. He argues that Nagel's test may not prove as simple as Nagel appears to think. He argues that we "should be interested in what we can know about the bat's consciousness (if any), not whether we can turn our minds temporarily or permanently into bat minds" (Dennett, 1991, p442), and that Nagel confuses the two options. He suggests that we can build up a heterophenomenological narrative by asking questions and undertaking the kind of research that will lead us to an account of the bat's perceptual and behavioural world. He produces evidence of existing research that he claims goes a long way in helping us build this narrative.

Some have criticised Dennett's use of heterophenomenology for doing less than he claims. Dan Zahavi, for example, comes from a background of traditional

Husserlian phenomenology and has written that

contrary to Dennett's claim, classical phenomenology already combines the resources of auto- and heterophenomenology. To put it differently, not only do the classical phenomenologists stress the interdependency of auto- and heterophenomenology, contrary to what Dennett himself is doing; in their numerous analyses of how foreign subjectivity manifests itself in gestures, expressions and bodily behavior, they have also provided us with a more sophisticated and nuanced understanding of how to heterophenomenologize than Dennett has done.

(Zahavi, 2007, p39)

However, I would argue that Zahavi either misses or misunderstands Dennett's central claim, which amounts to the fact that, although we feel conscious, we do not experience consciousness in the ways that we usually think we do, and that therefore we should not ask whether or not classical phenomenology provides techniques for the first person exploration of consciousness but rather whether we possess a first-person consciousness at all.

Dennett argues that when "we arrive at heterophenomenological narratives that no critic can find any positive grounds for rejecting, we should accept them - tentatively, pending further discoveries - as accurate accounts of what it is like to be the creature in question. That, after all, is how we treat each other." Anticipating an objection he concludes by pointing out that he "is not shifting the burden of proof, but extending the normal, human, burden of proof to other entities". (Dennett, 1991, p442-3).

Dennett regards this argument as important because he believes that Nagel has asked a subtly circular question in which its premises make assumptions about crucial aspects of the consciousness that it intends to investigate. Trying to imagine "what it is like to be" a bat implies that we can point to other entities that we can successfully imagine "what it is like to be", and yet this appears to Dennett unwarranted and extremely unlikely. Can I know "what it is like to be" you experiencing the colour green, or tasting sushi for the first time? Even closer to home, can I genuinely imagine "what it is like to be" me tasting sushi for the first time twenty years ago? Dennett thinks not, and I think that the model of consciousness that Dennett proposes in place of the Cartesian Theater explains why.

17.3. The Problem of Vitalism

Dennett adopts a specific kind of eliminativist position, through which he claims that he simply has less to explain than most people imagine. He argues that, although we correctly regard ourselves as conscious, and although we undoubtedly have thoughts and feelings, we do not experience consciousness in the way that we usually assume we do, and our thoughts and feelings do not arise in the ways that folk wisdom suggests. When we experience ourselves as conscious we simply experience "what it feels like to be" creatures whose brains perform certain functions; and that to conceive these experiences as something additional to brain functions requires us to invent an imaginary extra component which we will subsequently hunt for and fail to find. According to Max Velmas, this aspect of Dennett's position has descended from, and appears similar to the position adopted

by the British philosopher Gilbert Ryle. "For him, terms like 'mind' and 'consciousness' are nothing more than attributions that we make on the basis of observed behaviour. They are essentially fictional attributions which may be quite useful to make in ordinary life, but they do not correspond to anything real either in brains or in machines". (Velmans, 2009, p91)

Dennett offers historical parallels for his position, citing vitalism, "the view that living things contain some special physical but equally mysterious stuff -- élan vital" (Dennett, 1996, p24), as one important example of attempting to explain something by inventing an extra and invisible component in the system, that subsequently fails to turn up. Galen of Pergamon first promulgated the idea in AD200, believing that living creatures breathed in a mysterious vitalist substance from the air. In Dennett's view, vitalism "-- the insistence that there is some big, mysterious extra ingredient in all living things -- turns out to have been not a deep insight but a failure of imagination". (Dennett, 2005, p178)

Investigators have made many such attempts to explain phenomena by adducing an additional factor. Johann Joachim Becher published *Physical Education* in 1667, and proposed the phlogiston theory. Phlogiston, he argued, had the capacity to cause things to burn, and different materials either contained it or did not. Flammable materials held phlogiston in differing amounts, and inflammable materials lacked it completely. This theory remained influential until the end of the eighteenth century, although over time the conception of phlogiston gradually shifted from that of a substance to that of a 'natural principle'. No amount of tinkering or adjustment saved the theory, because neither the imaginary substance nor the feebler 'natural principle' proved necessary.

17.4. *The Cutaneous Rabbit*

Dennett suggests that almost all of our current models of consciousness follow from the central duality proposed by Descartes, and almost all offer a version of what he terms the Cartesian Theater. These models do not all fall into the trap that Gilbert Ryle termed "the ghost in the machine". They do not all posit a homunculus inside the head receiving, and acting upon, information from the senses. Most people understand and reject the infinite regression implied by this. However, most models of consciousness still imply the existence of a real or conceptual time and place at which something "enters consciousness"; they imply that we can in principle time the exact moment when you become aware of something happening, and we can in principle locate an exact place in your brain where this awareness manifests.

This, Dennett says, we can define as Cartesian materialism, which "is the view that there is a crucial finish line or boundary somewhere in the brain, marking a place where the order of arrival equals the order of 'presentation' in experience because what happens there is what you are conscious of". (Dennett, 1991, p107) This view contains as fundamental a flaw as a belief in the ghost in the machine, albeit wrapped somewhat differently. We can fairly judge a belief in a single place where "everything comes together", where input from the senses combines with memories and the results of cogitation to generate a sense of consciousness, to mean one of two things. It may mean that this person believes that experimentation will eventually locate a specific place in the brain where this happens. In this case we can judge Descartes correct in his hypothesis and merely unlucky in his choice of the pineal gland for

the location of the process. Unfortunately, however, no research to date has pinpointed such a place or even suggested any likelihood that such a place exists. The more we learn about the functioning of the brain the less centralised it appears. Alternatively we may take it to mean that this person does not believe that the finishing line exists in a specific area of the brain, but rather that it has a non-material existence. Such a belief, however, would simply resurrect the Cartesian Theater; emptied of its previously audience, the homunculus, and now playing to an empty house.

A wide range of experiments other than Libet's have raised both logical and practical difficulties with this model, or any model resembling it. Psychologists Paul Kolers and Michael von Grünau created one such test, the so-called color phi experiment in which subjects view two images in quick succession. The first image displays a blue dot near the top left of the screen and the second shows a red dot near the bottom right of the screen. When the subjects view the two images in succession for 150 milliseconds each, with a 50 millisecond gap between them, they report that they see a single dot moving from the top left to the bottom right of the screen. Moreover they see the spot changing colour when it reaches the centre of the screen.

Like Libet's alleged time-shifting this experiment raises important questions about the relationship between perception and consciousness. The subjects report the dot moving diagonally down to the right and changing colour in the centre of the screen - which means, in effect, that they claim to have observed the colour of the dot changing before they have seen the second dot.

The "cutaneous rabbit" experiment, reported in 1972 by psychologists Frank Geldard and Carl Sherrick, produced a set of similarly counter-intuitive results. In this experiment the arm of the subject

rests on a table, underneath synchronized mechanical "tappers". When a sequence is initiated, the machines deliver a series of taps in rhythm on certain points on the subject's arm - for example, three at one point on the wrist, then two at the elbow, and then two on a single point on the upper arm. Intervals between the stimuli could be anywhere between 50 and 200 milliseconds, so that any one sequence might last from less than one second to two or three seconds.

The effect as reported by the subject is astonishing: rather than "feeling" each of the taps where they occurred, subjects report an equidistant series of taps "hopping" up their arm in regular sequence, like a tiny rabbit bounding gleefully upon their nervous system. That is, they felt taps in between the areas that were actually being stimulated that altered the sequence in their brains.

(Everything2.com, 2012)

We can interpret these findings in numerous ways, and many of these interpretations depend on whether we intend to smuggle an implied dualism into the Cartesian theater. Paul Churchland, in *Mind and Consciousness* (1984), suggests that we use Occam's Razor as the first line of defence against dualist interpretations. From this perspective we should remain wary of complex arguments that give the brain a new and additional ability to time-shift chains of perceptions before presenting them to consciousness. Like the invention of phlogiston, these suggestions may simply attempt to solve one mystery by inventing another.

Daniel Dennett explains the results of all of these experiments by proposing an entirely different model of consciousness that also aims to meet Churchland's requirement of not introducing new elements to explain difficulties. He terms this the Multiple Drafts model, basing the name on the practice of academic communities in circulating drafts of papers among many scholars, and then modifying the paper in light of comments, with the consequence that multiple drafts of a paper may circulate through a community at any time, right up until the final publication of the paper in an academic journal.

Dennett points to evidence suggesting that processes in the brain operate in a localised manner, and do not take place under the control of a central scrutiniser. He suggests that I will experience an event in many different ways, and my brain will interpret these parallel experiences over multiple time spans. During these processes, different neural activities will assert more or less control at different times, and the resulting consciousness simply reflects the fact of some (but not all) activity resulting in actions, and thus becoming facts in the world available to memory. In other words, consciousness does not consist of

presentations (in the Cartesian Theater) but judgments about how it seems to the subject, judgments that the subject himself can go on to interpret, act upon, remember... These events fix interpretations of what the subject experiences, and thus provide fixed points in the subjective sequence.

(Dennett, 1991, p169-170)

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When I observe an event my brain will generate many internal actions and produce many internal interpretations and reactions which will compete for attention until one of them finally gets "published" in the form of a verbal response or a physical action. I may find myself standing up, having pushed my chair back and knocked it over, shouting "how dare you say that about my wife!", and suddenly become aware that what I just heard had made me angry. Importantly, the discovery that I feel angry will occur when I find myself standing up, just as the simplest face-value interpretation of the results of Libet's experiments suggests it will. I do not become conscious that I have become angry, cogitate about what course of action to take, and then, when I have made up my mind, stand up in a fury. My consciousness of feeling angry, my judgement that at that time I felt angry, forms part of a narrative that I tell myself when I think back on the situation. At the moment that the incident occurs I become too all-absorbed in generating my anger to have any capacity (or any need) to become conscious that I feel angry. I will do that later (moments, seconds or milliseconds later), when my anger has peaked, and I can step back from my absorption to make a judgement about what just happened.

17.5. The Multiple Drafts Model: Consciousness as an Abstraction

We can best view consciousness, then, as an abstraction and not as a "thing" that scientists can identify and locate. Dennett offers an analogy that likens consciousness to the human voice.

We say 'I hear a voice', 'he has a tenor voice', 'you will strain your

voice', and 'I have lost my voice'. Now is a voice a thing? If so, just what thing is a voice? The voice we strain may seem as unproblematic a physical part of the body as the back or eyes we strain, perhaps the vocal cords; but surely one does not have tenor vocal cords... or lose one's vocal cords.

(Dennett, 1969, p27)

Dennett points here to the fact that we use the word 'voice' to mean several overlapping aspects of a phenomenon: the physical apparatus that makes sounds in the throat, the sounds themselves, and various characteristics of those sounds. We do not get confused about these overlapping uses and nor do we confuse ourselves into thinking that we could find an actual object called a voice located somewhere in the human body. We know that the body, in fact, contains no voice-object, only organs capable of producing the sounds that we conventionally label a human voice. This, Dennett argues, puts us in the same position that we find ourselves in when we consider the human mind and human consciousness, although all too often we choose not to recognise it.

Our notions of consciousness operate as abstractions that make discussion simpler, just as the idea that the body has a centre of gravity operates as a useful abstraction that makes certain calculations easier. Surgeons will never operate on my centre of gravity, just as they will never operate on my consciousness. We can view consciousness, in Dennett's phrase, as "a centre of narrative gravity": an abstraction that we can usefully use to describe the ongoing story that we tell ourselves about our experiences.

To complete the Multiple Drafts model Dennett tackles the idea of qualia - a term proposed by Clarence Irving Lewis, in his book *Mind and the World Order* (1929) for the idea that when we experience redness we can define a unit of experience that represents the redness that we can experience. Lewis and others have defined this as "the 'what it's like' character of mental states. The way it feels to have mental states such as pain, seeing red, smelling a rose, etc." (Eliasmith & Mandik, 2004). Dennett argues that

The infallibilist line on qualia treats them as properties of one's experience one cannot in principle misdiscover, and this is a mysterious doctrine (at least as mysterious as papal infallibility) unless we shift the emphasis a little and treat qualia as logical constructs out of subjects' qualia-judgments: a subject's experience has the quale F if and only if the subject judges his experience to have quale F. We can then treat such judgments as constitutive acts, in effect, bringing the quale into existence by the same sort of license as novelists have to determine the hair color of their characters by fiat. We do not ask how Dostoevski knows that Raskolnikov's hair is light brown.

(Dennett, 1988)

Dennett insists again that we would do better to see what philosophers usually treat as aspects of consciousness as judgements within brain processes. From this perspective we can explain our perceptions in terms of how they affect us, without needing to posit an extra entity, the quale, whose nature and reality will cause us endless grief as soon as we try to analyse it.

So when we look one last time at our original characterization of qualia, as ineffable, intrinsic, private, directly apprehensible properties of experience, we find that there is nothing to fill the bill. In their place are relatively or practically ineffable public properties we can refer to indirectly via reference to our private property-detectors -- private only in the sense of idiosyncratic. And insofar as we wish to cling to our subjective authority about the occurrence within us of states of certain types or with certain properties, we can have some authority -- not infallibility or incorrigibility, but something better than sheer guessing -- but only if we restrict ourselves to relational, extrinsic properties like the power of certain internal states of ours to provoke acts of apparent re-identification. So contrary to what seems obvious at first blush, there simply are no qualia at all.

(Dennett, 1988)

The Multiple Drafts model, then, tells us that what we have traditionally called consciousness equates to a benign user illusion: a useful abstraction that enables us to bundle together our memories of our experiences and our experiences of our memories. The model also implies that consciousness has a gappy nature, and that we misjudge how often, and when, we have an awareness of feeling conscious. At a moment of fury we feel furious. We only become conscious of being furious later. In a similar vein, Sartre pointed out that, when we run to catch a moving vehicle, we have no consciousness of anything because our entire being remains focused on the all-consuming act of running for the bus. He suggests that "When I run after a streetcar, when I look at the time, when I am absorbed in looking at a portrait, no I is present. There is consciousness of the streetcar-having-to-be-caught, etc., and non-positional consciousness of that consciousness." (Sartre, 1936, pp48-49) If we wish to describe our state of consciousness at this point we can describe it, at best, as pre-reflective.

Dennett would deny that pre-reflection equates to consciousness at all in any meaningful sense. Instead he points to a number of experiments that demonstrate that we do not have the seamless access to the world that we believe we have. Our vision, for example, has neither temporal nor locational continuity, and nor does our brain continually fill-in the missing parts. We can see this by looking at the many experiments and optical illusions related to the scotoma, the blind spot we all have in our vision. Although we can easily achieve an experiential awareness of the scotoma, when we see it demonstrated, we remain completely unconscious, in our daily lives, of a hole in our vision. In daily life it seems likely that, during our neural activities, we make judgements about what we expect to find in our range of vision while focusing our attention on something specific. Illusions, such as the *Cornsweet* illusion in which identical colours appear different to our eyes, also demonstrate that our access to the world never takes the form of unmediated access to raw data but always involves a form of judgement.

If we concentrate on looking at a tree we will see the tree and remain unaware that we have a hole in our vision. If we switch our gaze to a person walking in the distance we will begin to make out some details of which we were previously unaware. Dennett argues that something very similar happens with our consciousness. If we ask ourselves, "What am I thinking?" we will always provide ourselves with an answer, and we will almost always believe

that the answer counts as a true account of what thoughts we had in our mind when we asked. If we ask ourselves, "Am I conscious right now?" we will always supply ourselves with an answer that suggests an affirmative answer. From this we extrapolate that we think all the time and thus always remain conscious. Dennett argues that we should regard this as an unjustified assumption, because we have no way to check its truth value, and no reason to assume that its truth value would turn out as positive.

We can, in truth, say no more than we have behaviours, that we can observe ourselves having these behaviours, that we observe others apparently exhibiting similar behaviours, that these behaviours include the abilities to think and to think about thinking, that we compose life-narratives from self-observing and observing others; and that for the sake of simplifying (internal and external) discourse we conventionally refer to the totality of this experience as "being conscious".

Consciousness then does not act as a driver but rather sits with us as an additional passenger; a benign user illusion that we encourage ourselves (and others) to treat as real.

CHAPTER 18: MEME THEORY

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In 1859 Charles Darwin published his book *On the Origin of Species*. In this he laid out a theory of evolution that others have fine-tuned and tweaked since, but never disproved or overturned.

As Charles Darwin described it, evolution requires three factors: variation, selection, and retention. It requires something copyable, with a process for copying that permits the making of less-than-perfect copies. This provides the mechanism through which mutation occurs. It requires an environment in which not everything can survive, and therefore not all variations will have an equal chance to survive. This provides the mechanism through which some variations achieve dominance over time. It requires some mechanism of inheritance which allows the passing on of successful variations. This provides the means through which adaptations and mutations can evolve over more than one generation.

Darwin and his successors have provided detailed descriptions of these mechanisms in action to the extent that only the wilfully blind refuse to acknowledge the explanatory power of the theory. However, although Darwin's applied his theories to the genetic structure of living creatures, to explain biological evolution, people have long noted that the rules that he elucidated could have more general applications. We have grown up accepting the arguments for evolution in the natural world, but the other possible applications of the theory still strike many of us as counter-intuitive.

18.1. Universal Darwinism

Early attempts to widen the application of Darwin's ideas received harsh criticism as weak analogies or metaphors. Social Darwinism, for example, took the idea of "the survival of the fittest" and attempted to apply it to group behaviour. Within a year of Darwin's publication, Herbert Spencer published *The Social Organism*, in which he argued that society evolves in a way analogous to a living organism. The primary problem with this argument, and subsequent developments of it, lay in the fact that the analogy remained just that. No Social Darwinist managed to discover a causal mechanism through which society must inevitably evolve, and the fact that human beings appear to have choices, and thus a role in deciding their own fate, made the analogy a weak one. Even where several tribes or countries find themselves in conflict over scarce resources, they have the ability to proceed along several different lines. They can go to war. They can negotiate. They can migrate. They can amalgamate. They can set about altering the situation in many different ways. The several species of insects or birds needing access to the same scarce resources cannot avail themselves of these options. Instead, according to Darwin, some have inherited characteristics that enable them to live long enough to produce offspring, while others die before they mate and so, over time, the range of wildlife in the habitat changes.

In its original formulation people viewed the theory of evolution in the biological world as suggesting a way in which living things bettered themselves. In 1976 Richard Dawkins published *The Selfish Gene* in which he proposed a completely different view: that the evolution did not exist to benefit the insects, fish, birds and animals that evolved successfully, but rather to benefit the creatures' genes. Dawkins suggested that we can see genes as replicators, concerned only with copying themselves. From this perspective, living creatures merely form the vehicles which genes have used and developed to do this.

When Dawkins uses the word 'selfish' to describe the actions of genes he does not mean to imply that they have intelligence or make moral (or any other) choices. He simply intends the phrase to serve as useful shorthand for a process that we might describe as self-interested if we adopted the intentional stance. In other words, he suggests that we can understand the process best if we imagine that "it is as if" genes act selfishly. He says that "we must not think of genes as conscious, purposeful agents. Blind natural selection, however, makes them behave rather *as if* they were purposeful, and it has been convenient, as a shorthand, to refer to genes in the language of purpose. For example, when we say 'genes are trying to increase their numbers in future gene pools', what we really mean is 'those genes that behave in such a way as to increase their numbers in future gene pools tend to be the genes whose effects we see in the world'." (Dawkins, 1976, Chap 11)

As a consequence of genes 'trying to increase their numbers in future gene pools', the interests of the genes and the interests of the host creature may not always align themselves, and indeed the self-interests of the gene might sometimes conflict with the self-interests of the host creature. The importance of this observation lies in the fact that we cannot now make any assertion that animals evolve towards anything. Animals do not get "better" since evolution has no goal and so no yardstick against which anyone can define

a creature as better or worse. Instead living organisms and their environment change and adapt in tandem. Evolving organisms have only one goal-like tendency we can observe: a tendency towards complexity. Evolution begins with unicellular creatures and proceeds by adding additional functionality. This continues through a process of addition and over time the world has filled with creatures that have become more and more complex.

(I acknowledge that human beings have the vestigial remains of tails, and that ostriches, penguins and other flightless birds still have vestigial wings. However the underlying point remains. Each of these creatures forms a more complex organism than the organisms from which they evolved. The vestigial parts currently in the process of disappearing no longer serve any purpose: they have had their functions superseded by functions of greater complexity. No examples exist of overall de-evolution in which a complex creature evolves back into something much simpler: something that naturalists would place lower on the ladder of evolution.)

Richard Dawkins pointed out that we need not limit the mechanisms that Darwin described to an analysis of the way that biological creatures change and grow more complex over time. He suggested that Darwin had outlined a much more general principle that delineates the three aspects necessary for any replicators to flourish. Once we have acknowledged the concept at the root of the selfish gene theory - the idea of replicators and host vehicles - then we might usefully posit a Universal Darwinism, in which the evolution of life on Earth serves as one specific example of a much more general principle. We might then look for other replicators, not on the grounds that we could claim them as analogous to genes, in the way that social Darwinism attempted to claim social behaviour as analogous to genetic behaviour, but on the grounds that we could identify them as distinctive and 'selfish' replicators with unknowing hosts, following the same general principles outlined by Darwin.

18.2 Memes as Replicators

Dawkins suggested that memes provided an example of such a replicator, and that scientists could usefully explore memes using approaches drawn from Universal Darwinism. "Just as we have found it convenient to think of genes as active agents, working purposefully for their own survival, perhaps it might be convenient to think of memes in the same way. In neither case must we get mystical about it. In both cases the idea of purpose is only a metaphor, but we have already seen what a fruitful metaphor it is in the case of genes." (Dawkins, 1976, Chap 11)

Describing what he meant by memes, Dawkins argued that

Examples of memes are tunes, ideas, catch-phrases, clothes' fashions, and ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation. If a scientist hears, or reads about, a good idea, he passed it on to his colleagues and students. He mentions it in his articles and his lectures. If the idea catches on, it can be said to propagate itself, spreading from brain to brain.

(Dawkins, 1976, Chap 11)

Dawkins made it clear from the beginning that he regarded the idea that memes acted as replicators literally. He did not suggest that we could look at memes "as if" they functioned in the same way as genes; he said that they actually did function in the same way. He noted that

my colleague N.K. Humphrey neatly summed up an earlier draft of this chapter: "... memes should be regarded as living structures, not just metaphorically but technically. When you plant a fertile meme in my mind you literally parasitize my brain, turning it into a vehicle for the meme's propagation in just the way that a virus may parasitize the genetic mechanism of a host cell. And this isn't just a way of talking -- the meme for, say, "belief in life after death" is actually realized physically, millions of times over, as a structure in the nervous systems of individual men the world over.

(Dawkins, 1976, Chap 11)

Dawkins makes this distinction so explicitly because he does not want the argument to take genetic advantage as its starting point. Social Darwinists always rooted their arguments in a supposed "biological advantage" conferred by one form of social organisation over another, or conferred by one invention over another. Dawkins, in contrast, says that if we regard memes as an example of a second replicator at work, then we should analyse their spread in terms of the advantages that it confers on them, and not on any advantages that they might fortuitously confer on either their human hosts or the genes also carried by their hosts.

If we look at memes as possible replicators in their own right then questions arise immediately. Why do memes reproduce? What do we get out of it? How does it happen?

We can understand the first question in several different ways. We might wish for a technical explanation of why memes reproduce, in a similar way to a child asking why water boils and gaining satisfaction from an explanation about heat and steam. However we might mean something considerably more slippery. We might want to know what it means to say that a piece of information - a song or a recipe - would want to reproduce. We can answer this simply by saying that they don't. Rather we use terms like "want" and "selfish" as shorthand in exactly the way biologists use them about genes. Genes do not have intentions, they do not (as far as we can see) exhibit sentient awareness. Nonetheless they have a persistent existence which suggests that we should not regard them as tools owned by the creatures within which they exist, but rather as replicators that have caused more and more complex hosts to evolve around them. This idea follows from the internal logic of the theory of evolution, as Dawkins suggests, and we can therefore apply it to any replicator whose constitution and behaviour falls under the general heading of Universal Darwinism. The suggestion that memes also "want" to replicate and seek to do so for their own "selfish" reasons follows, then, as soon as we see them as replicators in their own right.

We can answer the second question, concerning what we get out of the process, relatively easily. If we accept that replicators appear to act in their own interests, then in the cases of both genes and memes, we should view whatever benefits we derive from hosting them as accidental and fortuitous. We live in a world in which water boils, and in which genes and memes use

whatever means necessary to reproduce; and we experience that as "what it is like to be" us. Put another way, for the purposes of this inquiry at least, we should accept all of these processes as constituent properties of what we experience as "what it is like to be" a human being, recognising that if these processes ceased then so would we.

Susan Blackmore has explored the third question, the question of how memes replicate, in great detail. She suggests that one of the primary characteristics that differentiate human beings from other animals hinges on our apparently innate ability to imitate, and to take delight in doing so. Babies learn to imitate whenever adults engage them by smiling or waving or making noises, and the way that they do this, and the results of their developing skills in so doing, differ in crucial ways from the mechanisms through which animals learn, although we tend to mask these differences by the fact that we use the word "learning" in many different ways.

We use the word 'learning' for simple association or 'classical conditioning' (which almost all animals can do), for learning by trial or error or 'operant conditioning' (which many animals can do), and for learning by imitation (which almost none can do).

(Blackmore, 1999, p4)

Once we stop to reflect, it becomes clear that imitation lies at the heart of most aspects of human life. Almost all parents of young children regularly hear, "I know how to do it myself" or "Why can't I do that?" Children have an insatiable appetite for imitation, for doing what they see others doing, and singing and saying what they have heard others sing and say. This does not stop naturally in adulthood, although the dominant modes of socialisation, the games we play, make it less apparent. When a catchy new tune appears on the radio, people will soon begin singing, whistling or humming to themselves. A painter, photographer, or potter, surprised and delighted by an effect that somebody else has created will want to know "how it is done". We do not just feel idle curiosity at moments like this: we feel a need to gain the capacity to imitate what we see in front of us. Wanting to know "how it is done", so that we gain the ability to do it ourselves, forms a large part of "what it is like to be" us, in part because we, in contrast to most other animals, all possess a theory of mind: a sense of another person as an intentional agent, and an ability to imagine, however imperfectly, that agent's motivations and thought patterns. Imitation, in the sense Blackmore uses it, means more than mere copying of an artefact or effect. It involves an attempt to copy the intentions behind the making process. A baby does not learn to say hello in the same way as a budgerigar. The bird learns to make the noise whereas the baby learns the intentions behind the noise and so, even though the baby may initially reproduce the sounds less accurately than the bird, she learns to produce them at appropriate times and in the correct contexts.

Before looking at the range of activities we can define as memes, we need to clarify exactly when we do, and when we do not, encounter memes. Not everything that we see, hear or learn involves memes. Immediate sensory input does not involve memes, although the thought that follows soon after ("What a nice red apple!") almost certainly does. It follows that not everything we learn involves memes, since some learning occurs via sensory input. When a small child touches the flame of a candle, burns himself, cries, and learns

to approach candles with caution, the learning process does not involve memes. The bodily response to the burn - the pain and the subsequent blister that remains sore for the rest of the day - can act as a teacher though simple operant conditioning, even if the child never seeks help or tells anyone else of their experience. We may view this kind of learning as examples of the undermind at work: the network of brain processes that guide us through our daily existence without us being aware of them. This operates in a much more powerful way that folk wisdom suggests. Guy Craxton details a wide range of experiments demonstrating that we "are more in touch with, and more influenced by, the world around us than we know". (Craxton, 1998, p100) However, almost everything that we actually communicate to somebody else does involve the transmission of memes, in one way or another.

When a child reacts by withdrawing her hand from the flame of a candle she uses her inherited instinct. A cat or dog would do the same, or similar. When the child subsequently moves her hand across the table in a way that avoids the flame she makes use of her undermind. Some animals would do this while some would not. However if the child who burned herself on the candle goes to her mother for comfort, she will learn something in addition to the lesson she has already learned. She will become a player in a family game that might invoke many aspects of the family's relationships with each other, and with their individual and group histories. Her mother will seem sympathetic and practical, or she will seem brusque and dismissive, or she will seem over-protective and domineering. As a result the child will get a short lesson on heat and fire, or will be told she "is" stupid, or will watch as her mother puts all the candles out and worries about how they will now see to read. Her mother's reaction may, as Eric Berne suggested, arise from her own Parent, Adult or Child, themselves socially constructed from the games she learned in her own childhood. We can now see all of these games as the results of memes; as chunks of information that have successfully propagated through several generations of one or more families, and that, having triggered them by burning her finger and crying, the child now learns (and will later imitate).

We can characterise almost everything that we learn socially as memetically driven. Memes do not just appear in small fragments of verbal communication, such as songs and jokes. They include the larger learned environment: the language in which the jokes get expressed, and the musical structures within which the tunes take form. This socially learned environment forms an important part of what Perls has called the contact-boundary: it serves to delimit our reality by directing our attention in certain directions and away from others. As we have seen, one structure for our language can make it possible for us to worry about whether or not barbers who shave only those who do not shave themselves can shave themselves, while, using another linguistic structure, this fear simply never arises.

Memes need not take verbal form. They may also appear in identifiable patterns of behaviour, such as a characteristic way of walking or gesturing ("He walks just like his father"), a predictable response to unexpected happenings ("He's always so pessimistic"), or the social games that Berne has described. People learn these and other behaviours during childhood, from parents, other role models and peers; and all of them may then get passed on from parent to child.

18.3. Memes Unmasked

This raises the question of exactly how we can quantify a meme. When we watch someone slouching along in a distinctive manner, with their head down and their mouth moving as though they had gum to chew, do we see one, two or three memes in action? Do we count Beethoven's Fifth Symphony as a meme, since it has successfully propagated itself across a large part of the world for several centuries, or do we count the first four or eight notes as a meme, since they have managed to spread themselves in ways that the complete symphony has not? Both Blackmore and Dawkins suggest that we adopt a pragmatic position and do not stop to worry about this, and they give several reasons.

Firstly, they note that the science of genetics began long before researchers had a clear idea of any of the details of the structure of genes, and one of its initial tasks involved identifying these. Secondly, even today scientists cannot define the gene in a consistent way that everyone will accept. Instead the ways in which scientists identify genes depend in part on their tasks at hand: they identify them partly by convention and partly by their specific pragmatic requirements. (Moran, 2007)

No single, universal definition of a gene exists. The Rat Genome Database defines a gene as "the DNA sequence necessary and sufficient to express the complete complement of functional products derived from a unit of transcription". The Report of ASHG- NW Gene Nomenclature Workshop says that a "gene can be defined as an abstraction that is useful for the purposes of nomenclature and for the assignment of a symbol. It was originally described as a 'unit of inheritance' and more recently as a 'set of features on the genome that can produce a functional unit'" (in http://www.genomicglossaries.com/content/Gene_def.asp) Laurence Moran, Professor in the Department of Biochemistry at the University of Toronto, disagrees vehemently with Dawkins' definition, which he describes as "involving hand-waving", and argues that the "most reasonable definition of gene is that it is a piece of DNA that is transcribed but there are exceptions to everything in biology. Some genes are made of RNA, for example, and sometimes it's better to define a gene in terms of the protein it encodes." (Moran, 2007) We might note that, even here, when trying to pin down a definition in reaction to the one that Dawkins gives, Moran offers three very different definitions in the space of two sentences.

The importance of this point, and the reason I raise it in such detail, lies in the fact that the words "gene" and "genetic" have entered popular discourse, and therefore a lot of people simply assume that they have clear definitions and "mean something", and then feel free to argue against the idea of meme theory on the grounds that "we don't even know what a meme consists of". Historic precedence, in terms of research into genetics, suggests that we could do well to adopt a tentative definition, recognising its inherent vagueness, precisely so that we can probe the issues to see if further research can lead us to more nuanced and detailed definitions.

At present, then, our definition of a meme must remain somewhat fuzzy, but we may still use the concept to raise pertinent questions. One such question revolves around what we might mean when we refer to memes rather than decisions. What does it mean to describe the spread of an opinion, or a fashion, or a popular craze, as a meme, rather than ascribing it to a con-

scious or unconscious act of will that we might label anything from 'peer pressure' to 'false consciousness'?

Malcom Gladwell, for example, has produced a popular analysis of the spread of crazes which strongly implies that certain definable groups of networkers spread information about something that catches their fancy to much larger groups of people who stand in awe of them, and therefore receive the information and act upon it. He divides people into collectors, mavens and salesmen, and relates them to Stanley Millgram's answer to the "small world" problem to produce what he terms "the Law of the Few" (Gladwell, 2000). This kind of description does little more than outline the mechanism through which this transmission allegedly happens. It might explain the middle part of a three stage process, offering a demonstration of how information about new fashions reaches people, but it does not explain the first and third parts. It does not explain why information about shoes, soft drinks or a new taste in food would interest anybody in the first place. It cannot explain why followers would choose to follow the lead of trendsetter - except by a circular argument that declares in effect that followers follow because that forms "what it is like to be" a follower.

Gladwell begins his book with a conventional view of human nature. He appears to accept the idea that we think, plan and talk as individuals and then, as self-made people, sometimes allow ourselves to become influenced by ideas when others present them to us in forceful and persuasive ways. However, as he tells the story of his research, he also discovers that "mimicry... is also one of the ways in which we infect each other with our emotions. In other words, if I smile and you see me and smile in response... it's not just you imitating or empathizing with me. It may also be a way that I can pass on my happiness to you." (Gladwell, 200, p84) He discovers that emotional communication - communication through the undermind - can go in both directions, just as rational communication involving the transmission of memes can travel both ways.

This still leaves us with a problem, though. Should we expect a meme to have a particular configuration, or does the term simply describe a bundle of observable patterns, wherever and however they occur? Blackmore and Dawkins correctly point to the fact that Darwin knew nothing of genes and yet much he, and his successors, carried out much important research on evolution. The idea of genes arose initially as a tentative hypothesis and, even by 1933, the geneticist T.H. Morgan "could claim that 'there is no consensus opinion among geneticists as to what genes are - whether they are real or purely fictitious.'" To many, genes were only a name for the Mendelian patterns of inheritance that people were observing in biology labs" (Aunger, 2002, p323). Only in 1953, when Watson and Crick demonstrated the molecular nature of DNA, did genes achieve a materiality.

Robert Aunger has suggested that Blackmore and Dennett seem too easily satisfied with the vagueness of their definition, and that this creates problems for both communication and research. He proposes a more restrictive, but clearer and empirically testable definition. He produces a complex argument to demonstrate that memes take the form of replicable states in cells in the human cortex, which have a virus-like ability to spread by infection. He suggests that this definition of what he terms neuromemes "provides us with a testable mechanism of replication that is consistent both with other sciences and with the expectation that culture evolves through the descent

of replicators" (Aunger, 2002, p330). The importance of this lies in the fact that it provides a clear and describable model of meme transmission, and meme evolution. Aunger claims that memes must require a habitat, and that their habitat must have restrictions, and that the human brain offers an ideal habitat, and stands as the only viable candidate. In saying this, he argues against treating symphonies, libraries or cathedrals as memes, and suggests instead that we view them as artefacts created by memes as part of a strategy to replicate.

Artefacts and behaviours fail the replicator test. Only brain states have the necessary qualities to replicate: they can cause similar entities to arise through information transfer. So memes should be in the brain. Does the brain have the qualities to harbor replicators like memes? Yes. It's an isolated, energy-rich environment housed inside the braincase, holding a soup of cells and chemicals.

(Aunger, 2002, p324)

Memes began as brain viruses replicating inside individual brains. They evolved means of infecting other brains through the use of signals and signs. Firstly this happened through the development of language and intentional imitation. Later they evolved the means to spread at a distance, both geographically and temporally, through the evolution of more, and more complex, tools and artefacts. "Signals began as neural communicators, then social ones. Most recently, however, they have learned to involve artefacts in their travels. Artefacts are abiotic substrates for signals located in the macroenvironment" (Aunger, 2002, p328). In this view, then, we should define artefacts such as books, churches, popular tunes and statues not as memes, but as something more like the extended phenotypes generated by memes.

Aunger suggests that human history and human culture has thus developed upon a triadic model that required the simultaneous evolution of genes, memes and tools. Tools have evolved as part of the extended replication cycle of memes, to which they remain tightly bound in a symbiotic relationship. Memes in turn have evolved in a symbiotic relationship with genes. Any discussion of memes must therefore include artefacts, media and tools, as a central focus, although they do not, however, themselves constitute memes, as Dawkins, Dennett and Blackmore would have us believe.

18.4. *Language and Narrative Gravity*

We have seen that consciousness always operates socially and that when we imagine that we start as individuals and then later become social, we have everything the wrong way round. We do not have single unified consciousnesses that operate in the ways that thinkers from Descartes to Freud imagined they did. Instead we have only our bodies and their organs, including our brains. Much of what we do occurs without us thinking about it; not because it happens 'pre-consciously', nor because it happens 'unconsciously', but because consciousness simply never enters into it. Some of the information that our brains receive gets dealt with by hard-wired, genetically imprinted instincts. The processes in our brains that Guy Chilton terms the undermind deal with much of the rest of the information we receive without any need for consciousness. We become conscious

in the act of judging our actions (often within milliseconds of performing them), in telling the story of what we have done, and in fitting that story into the ongoing narrative that forms "what it is like to be" us. As noted earlier, Daniel Dennett describes people, not as solid objects, but as abstractions; as "centres of narrative gravity".

Many disparate stories comprise each centre of narrative gravity. Usually they have become subsumed under one major narrative arc, although we carry with us a recognition that this may become subject to rewriting at any point. We do not, for example, usually register surprise when someone reinterprets earlier events in the light of what has just happened. Indeed, when somebody (in real life or in fiction) tells us that "I can see now how everything was leading up to this moment", we get ready to hear a story in which an unfortunate event in the past, viewed earlier as a life-destroying tragedy, now gets recast as a painful but necessary step on a journey to triumph. This process of rewriting does not just occur when we face traumatic events, it operates all the time. My earliest clear memory, for example, involves being on a tram in Liverpool at the age of three with my grandmother. Or does it? I clearly remember, at the age of eight or nine, a teacher at school asking the class about our earliest memories - and I remember replying with the story about the tram. Or rather I clearly remember talking about the incident at school ten years later at university, when someone there asked me about my earliest memory. On each occasion, and on other occasions subsequently, I offered details about the tram ride and the previous occasions that I had talked about it, along with details of the aspects that I could remember, such as sitting on my grandmother's knees. I no longer have any way of knowing which of these details I claim to remember actually happened as I now remember them, and which have evolved into vivid, and thus 'real' memories through the retelling of the story at intervals over fifty years.

Susan Blackmore suggests that our ability to imitate, and to learn by imitating, and the pleasure that we take in imitation, stands at the heart of "what it is like to be" us. Imitation distinguishes human beings from all other animals. She argues that initially imitation offered evolutionary advantages in that imitation offered the possibility of faster adaptation through learning by observation. This, in turn, gave the genes for imitation advantages for survival that would lead to their spreading through the gene pool. Complex imitation, proving to have even more survival advantages than simple imitation, would then also spread. Once imitative skills spread and became more complex, imitation could advance from observation alone to the development of language.

The development of language brings with it a second replicator: a unit of cultural imitation, the meme. Memes get spread from person to person by imitation, and most of them die out very quickly. Someone says something to a group of people and nobody else in the group finds it either interesting or amusing. Five minutes later everyone has forgotten it and the meme has died. Someone else says something to a group of people and half of them burst into prolonged laughter. They repeat it to their friends later and half of them burst into prolonged laughter. Their friends then repeat it, a replicable pattern gets imprinted in their brains, and the meme has burst into life. How long it will last, and how widely it will spread, depends on many factors. Urban legends provide one example of memes that have taken on lives of their own. Allegedly historical figures (such as King Arthur or Robin Hood),

whose stories have accumulated a neat moral framework, provide another.

We receive information from others and pass some of it on. This information wants to get passed on, not for our sake but for its own. It has parallel selfish needs to the gene: it needs to spread to stay alive. However, as with genes, not all memes have the same power, the same ability to spread from brain to brain. With reference to Gladwell's "law of the few", we should note that it makes little sense to picture this process as human agents choosing to pass on their opinions in a lifeless environment. Rather we should see figure and ground shifting, with the memes themselves often playing the role of the figure, while their human vehicles form shifting parts of a (very alive and very lively) ground.

Remembering that thinking and talking designate two forms of the same phenomenon, we can hypothesise that memes form the framework for almost all of our mental lives. We perpetuate memes especially, as Berne reminds us, those we absorb uncritically as children, and we tell and retell our story to others. The story we tell ourselves about "what it is like to be" us lives on in our minds as bundles of memes, chanted silently in our heads like mantras. We communicate with others and, by this route, memes may spread geographically. In spinning our personal narratives, rewriting and editing them to give them the kind of consistency we currently prize, we also communicate with our past selves. By this means memes may spread temporally. We look back at our past and remember selected parts of it, keeping those memes alive and nurturing them, and giving them the potential to replicate, and possibly mutate, with each internal retelling, until one day we may give voice to them in conversation and they get a chance to spread. It goes without saying that the many memes that we draw from our past and pass onto our future will die with us unless they become vocalised in ways that allow them to spread successfully to other brains.

Charles Darwin pointed out that, once the conditions for evolution become established, the process will start inevitably and, once started, continue. We can regard evolution as an algorithmic process: once set in motion it proceeds, with no intelligence needed, to a conclusion. Evolution occurs in this way using genes, which form the replicators necessary to make the system work. Once human brains reach a size and complexity sufficient to accommodate similar processes of replication, memes become the means by which a new kind of cultural replication can occur, and cultural evolution by means of the transmission of memes from one brain to another becomes inevitable.

We can recognise memes as the mental habits which Charles Sanders Peirce pointed out formed the desired resting points for our thinking.

18.5. Memes and Consciousness

We possess several different layers of action and response, and the narratives we spin about ourselves form only one layer. We think much less than we think we do, for if we thought as much as we think we do then we would never get anything done. We have two separate kinds of brain-process-leading-to-action, one fast and one slow (Kahneman, 2001). We call the slow one "consciousness", and that process involves what Dennett terms judgement. We analyse and ponder, and turn things over in our mind until we reach a conclusion. The fast one occurs in the undermind before we become aware of it. Sometimes we describe it as a reflex action, and

- sometimes we call it intuition. This process does not only occur during unusually dramatic or heightened events. It happens to us all the time, whether we notice or not. A tennis player does not think during her game. She enters 'the zone' and acts and reacts faster than the speed of thought. Her thinking occurs before the match when she plans her strategy and after the match when she tells herself how the game went. At these moments she might think about the game; but while playing she simply plays (cf Kramer, 2011).
- This process of action without thought does not relate solely to the physical aspects of our lives. A stand-up comedian, for example, does not think about how to respond to a heckler. The heckler shouts and the comedian responds and the interaction proceeds so quickly and smoothly that someone watching it later on film might assume that somebody had scripted the incident. Although we may not usually notice it, this same process occurs in almost every relaxed conversation between friends. The subject matter changes without notice but the conversational flow continues. People express beliefs before thinking about them, and then talk them into shape. Often a conversation within a group will take the form of Person A introducing a topic; B making a statement of belief in the form "Ah, you're wrong there. The real problem is..."; B getting challenged by other members of the group; and then negotiating through a series of statements like "All right, I'll give you that, but..."; until finally everyone in the group has settled the matter of what B believes and everybody, including B, now believes that this constitutes his sincerely held opinion.
- Only in formal situations, or situations in which we feel under stress, do we consciously think before talking, and this almost always results in slow and stilted conversation in which the participants use meaningless placeholder expressions to buy themselves time to think. People start their contributions in such situations with a formula of the sort "I do understand what you are saying, and I do take your point, but I think perhaps we might also..." We learn to make these phrases predictably long-winded and clichéd because they serve to enable the speaker to keep noise coming out of his mouth while his brain attempts to process what he actual intends to say, and they need to last as long as the speaker needs for this processing.
- Thinking can serve to undermine smooth interaction. Most of the time, we walk down the street or across a hall without thinking for even an instant about how we do it. If we think at all while we walk, we think about something else. The actual business of walking just happens. However, if we notice somebody watching us, or if we have to walk across a hall to make a speech, or to meet someone important and influential, and especially if we do this with a crowd watching, we become self-conscious - and once we become self-conscious, we do think about walking, and once we do that we can no longer walk the way we usually do. In these circumstances we can find ourselves trying to do a kind of self-impersonation. Exactly the same thing happens if we ever find ourselves thinking about riding a bicycle while actually riding a bicycle. We get caught up in thinking about how to do what we should just do, with the result that the usually simple task gets harder and harder.
- We can demonstrate the extent to which thinking inhibits action with a thought experiment. Imagine placing a plank on the floor and asking people to walk along it. Almost everyone will do it without hesitation. Posited as a game, walking along a plank without falling off will appear too simple to

bother with: a literal case of "anyone can do it". Now try placing the same plank two metres off the ground between two scaffolding towers. People's perception of the game will change. Place the plank between the towers twenty metres above the ground and now people's perception of the game will change radically. Why does this change in attitude happen? The task remains precisely the same: walking along a plank wide enough that "anyone can do it". The difference lies solely in the fact that, for most people, the realisation that they must walk two or twenty metres above the ground will cause them to fear that they will injure themselves, possibly badly, if they fall. This will make it impossible for them to walk the plank without at the same time thinking about their actions, and their recognition from experience that thinking about doing something will inevitably interfere with doing it, will cause them to become frightened. Feeling and knowing this, they will lose their competence and become temporarily incapable.

Contrary to what we may think, we do not live by thinking but rather we bring our thinking abilities to bear on problems when our undermind finds a problem it cannot cope with, or when we need to reach a judgement, or when we wish to erase doubt. The contents of the minds we use to perform these thought-actions reach us, in large part, through socially transmitted memes which we arrange and manipulate like building blocks. Memes form the essential toolkit without which we could not function as human beings.

Memes gave humanity its first tools for the simple reason that mankind used the memes it gained from language to construct its first tools. Mankind never experienced any unmediated golden age of "direct communication", because all communication takes place within language (within which we include body language), and all language gets composed from mediated and memetic processes.

If we want to know "what it is like to be" us: we could do no better than to acknowledge that "we are stories all the way down".

The attentive reader might well ask at this point what all this means in practice. What difference does it make to how we view online worlds, or how we view life in general, to say that "we are stories all the way down"? Does this merely constitute a (more or less) interesting observation, or does it have ramifications for how we might act in the world? To understand how meme theory changes the way we view the world and our roles within it, we will need to map the relationships between language and truth; the tensions between different categories of truths; and the relationships between memes, truth and human agency.

19.1. To Be or Not To Be

We noted earlier the problems that Bertram Russell had with language, and how the structure of language created apparent paradoxes whose resolution depending upon realising that not all sentences that make sense formally make sense-in-the-world.

Friedrich Nietzsche had earlier observed the ill-effects this category error could cause. He pointed out that

people separate the lightning from its flash, and interpret the latter as a thing done, as the working of a subject which is called lightning... But there is no such substratum, there is no "being" behind doing, working, becoming; "the doer" is a mere appendage to the action. The action is everything. In point of fact, the people duplicate the doing, when they make the lightning lighten, that is a "doing-doing"; they make the

same phenomenon first a cause, and then, secondly, the effect of that cause. The scientists fail to improve matters when they say, "Force moves, force causes," and so on. Our whole science is still, in spite of all its coldness, of all its freedom from passion, a dupe of the tricks of language, and has never succeeded in getting rid of that superstitious changeling "the subject" (the atom, to give another instance, is such a changeling, just as the Kantian "Thing-in-itself").

(Nietzsche, 1887, pp28-29)

Alfred Korzybski and David Bourland would later explore this and related problems in considerable detail, and propose practical solutions (Korzybski, 1933; Bourland & Dennithorne, 1991). Their arguments traversed some of the same terrain as those proposed by Charles Sanders Peirce. They argued that the structure of language, as used both in scientific discourse and casual conversation, disguised the location of agency within the descriptions people gave, and led us into a series of disastrous errors, often springing from the misuse of what Korzybski referred to as the is-of-identity.

Other people explored the same area as its importance became increasingly clear. George Santayana encapsulated the problem thus:

The little word 'is' has its tragedies; it marries and identifies different things with the greatest innocence; and yet no two are ever identical, and if therein lies the charm of wedding them and calling them one, therein too lies the danger. Whenever I use the word 'is,' except in sheer tautology, I deeply misuse it; and when I discover my error, the world seems to fall asunder and the members of my family no longer know one another.

(Santayana, 2009, p78)

The use of the is-of-identity serves to remove an action or an event from its context and to hide the agency implicated in the action. In Peirce's terms it attempts to reduce a triadic action to a dyad, by sleight of hand; with the effect of providing a spurious element of self-justification that we might not even notice. The sentence "Ivar Giaever is a Nobel prize winner and he is a climate-change sceptic", for example, carries an air of spurious authority that lessens when we recast it as "Ivar Giaever shared a Nobel Prize in 1973 for discoveries related to tunnelling phenomena in solids and, although a layman in climatological matters, he has expressed scepticism about global warming". (Sceptical Science, July 2012). In the first version Giaever "is" a Nobel Prize winner, a formulation that invites us to assign him a high status and prepare to listen to what he tells us about climate change. The second version describes a train of events that contextualise Giaever's field of expertise while making clear that he received the prize a long time ago as part of a team researching into a subject that has no bearing on climate change. The second version also makes it clear that Giaever's position might conceivably change in the future because it positions him as having expressed scepticism rather than claiming that he "is" a climate sceptic.

As Korzybski said, "whatever we say something is; it is not". By way of demonstration he suggested a thought experiment.

Let us take three pails of water: the first at the temperature of ten degrees centigrade the second at thirty degrees, and the third at fifty degrees. Let us put the left hand in the first pail and the right hand in the third. If we presently withdraw the left hand from the first pail and put it in the second we feel how nicely warm the water is. But, if we withdraw the right hand from the third pail and put it in the second, we notice how cold the water is

(Korzybski, 1933, p372).

Not only do the contexts of our actions, and our descriptions of them, take place in space, they also become time-bound. Our experience of the water in the second bucket, and hence our description of it, depends upon which of several possible actions we made previously. Our description of the water in the second bucket, even if given honestly, will change dramatically according to which bucket we placed our hand in previously.

We see exactly the same process in action when we hear that someone "is an artist" or "is a film maker" or "is a murderer". Each use of the is-of-identity calls upon us to assign the person being labelled to a particular status, on the grounds that somebody whose identity we do not know, has previously defined them thusly, rather than inviting us to consider them as the agent of many activities and events, and to consider the wider contexts within which they enacted their agency. The repeated use of the passive tense, and the missing subject, in academic and political discourse also works in the same way. Phrases such as "The subjects were told..." "The experiments were designed as..." "The project began in..." all claim a general authority through the deliberate withholding of a specific subject. This happens so often that we usually do not notice it, but forms a platform of passivity that prevents us abstracting in a correct way and removes all context from the world we try to make sense of. Kellogg and Bourland explain it thus:

Listen to almost any news program, and you'll hear reports of political, social, and environmental crises. These problems do not originate "outside" of us, but from the beginning have stemmed from the short-sightedness of human beings going about their daily tasks using a two-valued, true-or-false, Aristotelian orientation: an orientation that has proven itself woefully inadequate to solving the complex problems of the twentieth century.

(Kellogg & Bourland, 1990, p376)

Kellogg and Bourland extends Korzybski's analyse to create E-Prime, the Language framework that I have adopted to write this dissertation. They describe E-Prime as a *linguistic discipline* (Kellogg & Bourland, 1990, p377), with one obvious characteristic. They suggest that

one could describe E-Prime simply as English without the verb "to be," such a definition misses the profound transformation in personal orientation resulting from such a change. In essence, E-Prime consists of a more descriptive and extensionally oriented derivative of English, one that automatically tends to bring the user back to the level of first person experience. In his book, *Language, Thought and Reality*, Benjamin Lee Whorf gives numerous examples of languages and cultures that support

his "principle of linguistic relativity" which states that the structure of the language we use influences the way we perceive "reality", as well as how we behave with respect to that perceived reality.

For example, if you saw a man, reeking of whiskey, stagger down the street and then collapse, you might think (in ordinary English) "He is drunk." In E-Prime you would think instead "He acts drunk, or "He looks drunk". After all, you might have encountered an actor (practicing the part of a drunken man), or a man who had spilled alcohol on himself undergoing a seizure of some kind, etc. Instead of simply walking by, you might look more carefully and send for an ambulance.

Although E-Prime usually reduces hidden assumptions, it does not necessarily exclude them. For example, you may have seen a woman, or a robot, or an extra-terrestrial, etc. ., that looked like a man and acted drunk. E-Prime fosters a worldview in which the user perceives situations as changeable rather than static, and in which verbal formulations derived from experience indicate possibilities rather than certainties.

(Kellogg & Bourland, 1990, p378)

Any attempt to explore the consequences of meme theory will run up against questions of agency, and so any successful attempt will need a linguistic discipline that can make headway in avoiding the traps of dualism. We need to avoid getting bogged down in nonsensical questions such as "who is in charge, the memes or us?", and to do that we need a linguistic discipline that can point out why we should find these questions nonsense. We need to make sure that we have questions that seem reliably relevant, and the means to formulate answers to them.

The physicist David Bohm wrote about this problem in *Wholeness and the Implicate Order*.

In scientific inquiries a crucial step is to ask the right question. Indeed, each question contains presuppositions, largely implicit. If these presuppositions are wrong or confused, then the question itself is wrong, in the sense that to try to answer it has no meaning. One has thus to inquire into the appropriateness of the question.

In fact, truly original discoveries in science and in other fields have generally involved such inquiry into old questions, leading to a perception of their inappropriateness, and in this way allowing for the putting forth of new questions. To do this is often very difficult, as these presuppositions tend to be hidden very deep in the structure of our thought. (For example, Einstein saw that questions having to do with space and time and the particle nature of matter, as commonly accepted in the physics of his day, involved confused presuppositions that had to be dropped, and thus he was able to come to ask new questions leading to radically different notions on the subject.)

What, then, will be our question, as we engage in this inquiry into our language (and thought)? We begin with the fact of general fragmentation. We can ask in a preliminary way whether there are any features of the commonly used language which tend to sustain and propagate this fragmentation, as well as, perhaps, to reflect it. A cursory examination shows that a very important feature of this kind is the subject-verb-object structure of sentences, which is common to the grammar and syntax of modern languages. This structure implies that all action arises in a separate entity, the subject, and that, in cases described by a transitive verb, this action crosses over the space

between them to another separate entity, the object. (Bohm, 1980, p36)
We will deal with this issue of fragmentation next.

19.2. *Fragmentation and Truth*

David Bohm spent a great deal of time contemplating how best to create what Kellogg and Bourland called a linguistic discipline. Bohm referred to it as an art. To their concern with the disruptive influence of the verb to be on our thinking, he added a warning about the corrosive effect of nouns.

Clearly, the act of apprehending relevance or irrelevance cannot be reduced to a technique or a method, determined by some set of rules. Rather, this is an art, both in the sense of requiring creative perception and in the sense that this perception has to develop further in a kind of skill (as in the work of the artisan). Thus it is not right, for example, to regard the division between relevance and irrelevance as a form of accumulated knowledge of properties belonging to statements (e.g., by saying that certain statements 'possess' relevance while others do not). Rather, in each case, the statement of relevance or irrelevance is communicating a perception taking place at the moment of expression, and is the individual context indicated in that moment. As the context in question changes, a statement that was initially relevant may thus cease to be so, or vice versa. Moreover, one cannot even say that a given statement is either relevant or irrelevant, and that this covers all the possibilities.

Thus, in many cases, the total context may be such that one cannot clearly perceive whether the statement has bearing or not. This means that one has to learn more, and that the issue is, as it were, in a state of flux. So when relevance or irrelevance is communicated, one has to understand that this is not a hard and fast division between opposing categories but, rather, an expression of an ever-changing perception, in which it is possible, for the moment, to see a fit or non-fit between the content lifted into attention and the context to which it refers.

At present, the question of fitting or non-fitting is discussed through a language structure in which nouns are taken as basic (e.g., by saying 'this notion is relevant'). Such a structure does indeed formally imply a hard and fast division between relevance and irrelevance. So the form of the language is continually introducing a tendency toward fragmentation, even in those very features whose function is to call attention to the wholeness of language and the context in which it is being used.

(Bohm, 1980 pp42-43)

Bohm argued, as indeed did Kellogg and Bourland, that the development of a scientific language in the form of subject-verb-object has had the effect of making us think in terms of fragmented elements visible against an inert backdrop. "The sun is 93 million miles away". "The rain fell on us". All of these things appear discrete. Object A fell upon Objects B and C. This kind of language invites us to view ourselves as actively doing things to the world or allowing ourselves to be done to. As with Russell's paradox, this effect springs from the nature of the language we use and not from the nature of the world.

Alan Watts had this in mind when he suggested (Watts, 1966) that we experiment with replacing the sentence "Human beings began to evolve on Earth sixty five million years ago" with "Sixty five million years ago the world began to people". ("To people", in this context, acts as the same kind of verb as "to rain".) Recasting human evolution in this way causes us to pause and may even bring us to see the inherent fragmentation in the either/or of linguistic dualism. Watts did not intend that we replace one formulation with the other. Rather he pointed to the fact that we can view our observations, and the abstractions and truths that we derive from them, from many different perspectives, each of which will reveal different aspects of a seamless whole; a whole that he likened to the dance of Shiva in its timelessness and the fact that we can never fully grasp it.

In a similar vein, the English theologian Don Cuppitt has argued that the realisation that we live inside language constitutes the great discovery of our age. He has described this process as coming to terms with the fact that we live in an outsideless world of language and that therefore asking what lies outside language no longer makes any sense. We have, in his terms, simply had to become non-realists.

After Kant we began more and more to see that all of our knowledge and our language are only human. In all our knowing, the mind conditions what it knows: the facts are profoundly shaped by the theories under which we view them and the language in which we describe them. We are always inside our own language and our own human standpoint, and can never directly compare our vision of the world with the way the world is absolutely. We are only human. In short, we cannot claim to have purely-objective knowledge of THE world, but we can claim to have many very useful ideas about OUR world, which is the world we see and the 'life-world' we inhabit. For us, the only world is the human world, the world of 'life', and our beliefs are not pictures of the world, but tools for living.

So, very briefly: realists think that mathematical truth is discovered, whereas non-realists about maths think that maths is a complex collection of useful games invented by us. Realists think that scientists discover 'the laws of Nature', readymade and out there, whereas non-realists think that scientists invent theories that help us to tell stories about why things go the way they do, and to predict outcomes successfully.

Today, a realist is the sort of person who, when his ship crosses the Equator, looks overboard, expecting to see a big black line across the ocean. Realism always wishes to turn cultural fictions into objective facts. A non-realist sees the whole system of lines of latitude and longitude as a framework imposed upon the Earth by us; a framework that helps us to define locations and to find our way around. For a realist Truth exists ready-made out there; for a non-realist we are the only makers of truth, and truth is only the current consensus amongst us. We cannot any longer suppose that our knowledge is validated by something wholly extra-human.

In brief, we don't know and we cannot know THE world, absolutely. We can know only OUR world, a world shaped by our ideas, seen from our perspective, and built by us with our needs in view.

Without mentioning it by name Cuppitt here describes a version of postmodern theory which, according to Roland Chia, "transformed the role of language in human culture so that now its role is no longer perceived as the signifier of reality, but as social constructs which constitute what is believed to be real. Postmodern epistemology assumes therefore that all explanations of reality are actually just constructions which are not objectively true, but which are determined by the social matrix from which the rules of the various language games are set. At the same time, postmodern epistemology also assumes that it is impossible for one to step outside of these constructions; the 'reality' which we create through our language games imprisons us (Chia, 1997, p7)".

Many people, Chia included, have decried this as relativism, which they assume we will agree to regard as a very bad thing. They seem to believe that relativism means that you have no right to criticise me for what I believe, and that you must accept my beliefs as true for me, even when they appear to fly in the face of all available evidence. Referring to the current position of the Christian Church, Chia suggests that postmodernism means that the "Christian metaphysic which postulates a certain ontological framework, like any other such grand narrative, can no longer be considered to be determinative. It can at best exist alongside other accounts (Chia, 1997, p8)." Relativism might indeed mean something like this if we start from a dyadic perspective in which we, as individuals, have just two choices: absolutism or relativism. However, as we have established, human affairs take place mostly within a triadic framework that begins with the social and not the individual.

Unless we really believe that all knowledge exists "out there", waiting for us to discover it, and that therefore one day we will know everything about everything, and science will have nothing left to do, we must realise that even absolutism exists socially, and requires continuous negotiation. The absolutism that Chia wishes to uphold differs greatly from the absolutism of a medieval pope. At some point in time between the two, demonic possession and witchcraft (among many other things) fell off the wagon. No longer generally perceived as divinely ordained absolute facts, they linger on in the minds of a relatively few whose existence embarrasses the conventionally faithful.

From a triadic perspective we have many more than two choices. From a memetic perspective we concern ourselves not with external truths and lies, but with self-propagating ideas that gain traction to various degrees and remain active as memes for various lengths of time. This point of view raises several questions concerning the contextual and genre-related nature of outsidelessness, which we can best discuss with three practical examples. The first returns us briefly to Marinetta to look at the way layers of truth both generate, and relate to, different contexts. The second looks very briefly at two writers, whose fiction addressed these issues. The third looks at the way in which Philip K. Dick tried to incorporate a series of traumatic events into his life and his fiction, uncertain about the truth value of the Black Iron Prison but unwilling to dismiss it.

19.3. Contextual Overlapping

The first example concerns the island of Rosario in Second Life. In 2009, Catharina Gröndahl raised several questions about choices that we had made during the Marinetta Ombro project, and about the contexts within

which we had made them. She asked permission to pursue a project of her own devising, which became her thesis project (Gröndahl, 2010); and in subsequent discussions she raised a series of questions that went straight to the core of the entire project. Her research unearthed a much more radical critique of the Marinetta Ombro project than even she intended. Her primary interest lay in building and creating and she proposed that we allow her to delete everything on the island in Second Life, and let her rebuild it. She wanted to determine whether we would have built the island any differently, if we had known at the beginning what we knew at the end. She ended up writing a thesis that concentrated on the technical aspects of building because she feared the philosophical issues would prove too difficult to write. However, the questions she asked along the way remained valuable in their own right.

She asked a series of practical questions rooted in the idea that Second Life did not model real life, or anything like it, but served as a working diagram of some version of heaven. These questions included:

1. What purpose do buildings serve in a world without weather of any kind and without heat and cold?
2. For technical reasons to do with the virtual camera that gives each avatar its point of view, buildings and walls cannot guarantee privacy. Why, then, would residents choose buildings in preference to hidden skyboxes?
3. In a world in which anything will hover if you place it in the sky, why would people choose to "live" at ground level rather than in skyboxes at an altitude of their choice?
4. Why would people use stairs rather than build teleporters to act as virtual elevators?
5. What purposes would galleries and museums serve in a world designed in such a way that theft does exist, and stealing cannot take place?
6. How would people use lakes and seas in a world in which everyone can breathe underwater and depth poses no problems?

The design of Second Life imposes its own presuppositions on everyone who enters it. Gröndahl suggested that we could not expect to situate Marinetta Ombro inside a simulation of heaven unless we accepted that we would inevitably have to allow the rules of heaven to guide the sociality of Marinetta. She argued that we had had two different, overlapping sets of "true" stories at play. She then compared what we had done with the histories of other virtual cultures in Second Life, regions such as New Caledon and Midian City (see Bäcke, 2011 for descriptions of these), and pointed out ways in which they had aligned these two sets of truths, and we had not. The primary "truth" consisted of all the environmental factors put in place by the designers of the software running Second Life. This determined that avatars could sustain no physical damage, and that each avatar could pluck unlimited building materials from thin air at no cost. This determined the selective nature of gravity and avatars' lack of bodily requirements or food, rest or air. The secondary layer of "truth" consisted of the story that we had created to justify the look and feel of the island, and to suggest modes of behaviour within the island. In contrast to Rosario, Caledon existed as a steampunk republic and it required its inhabitants to adhere to a steampunk



A screening at the underwater cinema

philosophy in whatever they built. Since steampunk formed a loosely-knit interest in the real world, and in online forums, the inhabitants of Caledon joined because of a pre-existing interest, and held regular meetings on Caledon to further this interest. Caledon became a living (and liveable) example of what already existed in books and in discussion forums, and since steam-powered rockets and hovering islands already existed within the literature the governing body in Caledon could keep the two layers of story closely aligned. In contrast we had accidentally created a tension between these two layers of truth that visitors found difficult to negotiate.

From these observations Gröndahl suggested that she should also try to align the two overlapping levels of "truth" in Rosario. She built an island in which there were very few buildings. Instead of meeting rooms, gatherings would take place outdoors in specially equipped wooded areas. Instead of galleries, photographic exhibitions would take place on hoardings around the central area of Marinetta. She built a central area that felt like a city although, on closer inspection, it had many decorative walls to divide spaces, but very few actual buildings. She relocated the cinema that screened student films from a cinema building to the bottom of a lake where neatly programmed fish swam in and out of view.

This process served as a practical confirmation of several strands of thinking. Firstly, we can never view the environment as a neutral background. The ground exerts as much force on the figures within it as the figures exert on the ground. In the real world this can remain unnoticed, or people can downplay or dismiss it. In the simplified and artificial environment of Second Life its power becomes more obvious as its effects become more exagger-

ated. Even here, though, we had managed to underplay its importance for the duration of the main project. Secondly, our success in overlaying several different narrative imperatives will depend on whether we notice the results of our activities, and what we do if (or when) we make this observation. If the process of overlaying causes incongruence then we will have to work harder to achieve our goals. If we can create a congruent alignment then we will achieve more much more easily. Thirdly the "truth" of a diagram can exist at many different levels, from the physical details to the emotional feelings it generates. The small city that Catharina Gröndahl built felt like a place with its own idiosyncratic characteristics, even though most of the walls simply divided spaces and most of the few buildings served as psychological decoration. She solved all the technical issues around making realistic buildings in Second Life by not making them, and in doing this moved the level at which Marinetta functioned as a diagram of a Mediterranean town from an attempted verisimilitude to a more abstract representation.

We asked a number of people to visit the new island and comment on it. All agreed that it worked better than the original versions, and some said that they had not even noticed the lack of habitable buildings. We held meetings in the wooded areas and, again, everyone reacted favourably. At a technical level people found it easier to control their avatar in an unconfined space. At a psychological level people felt the environment as more congenial to thought and discussion. In terms of the Rosarian narrative, a member of staff said

In my opinion this is what the island would have looked like if these people had spent two thousand years living on an island which operates like Second Life. It still feels it is in the Mediterranean, just not our Mediterranean!

This provided a valuable empirical coda, while also raising questions about how we should understand overlapping narratives that appear to combine to create a unified truth, and what status we should regard that "truth" as having. It also pointed to the fact that, despite our research, we had become infected, and fenced in, by our own language in ways we failed to grasp at the time.

19.4. *Language as a Virus*

The second example begins by noting that Don Cuppitt has spoken of the way in which our language environment encloses us and how, upon coming to realise this, we begin to live in a state of outsidelessness. Writers and artists have discovered, explored and played with this state for much of the twentieth century. In 1939, James Joyce published *Finnegans Wake*, after seventeen years of writing. Joyce intended the book as both a commentary on language and an example of living inside language. In it he details human history, not as a comprehensible narrative, but as a free-flowing series of puns, allusions, and dilations of time passing.

History in *Finnegans Wake* is a world of its own. The entire history of the human race flows past with the waters of the Liffey in an order logically concomitant with Joyce's structural plan, though contemptuous of mundane concepts of chronology - "riverrun, past Eve and Adam's,

from swerve of shore to bend of bay" (3.1-2) - in a Viconian circle that Joyce the Artificer has successfully squared: "eggburst, eggblend, eggburial and hatch-as-hatch can" (614. 32-33). Thus the flow of comprehensive but inarticulate history courses through all levels of the book like Anna Livia herself: "babbling, bubbling, chattering to herself, deloothering the fields on their elbows leaning with the sloothering slide of her, giddygaddy, grannyma, gossipaceous Anna Livia." (195. 1-4) (Benstock, 1965, p43)

Joyce concerns himself with the effects of the ground of language upon the figures in the book, but also with the effects of industrialised media upon the thoughts and actions of these figures. He describes celebrity, for example, as "foamous homely brew" (Joyce, 1939, p370), which froths up on the top and then rapidly dissipates. He also addresses the effects of then-contemporary media directly in his use of the word pastcast, which occurs more than once, through which he alludes to the ability of both radio broadcasts and cinema to summon the past into the present. This process, he suggests, "has ringround as worldwise eve her sins (pip, pip, pip) willpip futurepip feature apip footloose pastcast with spareshins and flash substittles of noirse-made-earsy" (Joyce, 1939, pp420-421).

Joyce effectively removed himself from any ordinary role in the evolution of literature with *Finnegan's Wake*. Seamus Deane describes this, in the introduction to the Penguin edition, as a process through which Joyce "surrendered the 'ordinary' world, the world as represented in the great tradition of the realistic novel, for a world of capricious fantasy and inexhaustible word-play." However the work has had cultural impacts of a wider range than his contemporaries predicted. Murray Gell-Mann named the quantum particle the quark after the phrase "Three quarks for Muster Mark" (Joyce, 1939, p383). Marshall McLuhan used references from *Finnegan's Wake* regularly in his writing and, indeed, the entire structure of *War & Peace in the Global Village* (McLuhan, Agel & Fiore, 1968) hinges upon quotations from it, to the extent that one might reasonably view it as an extended meditation on themes first raised in *Finnegan's Wake*.

Joyce deliberately set out to show how language takes us over, and how it forms and uses us as much as we form and use it. William Burroughs went further and described language explicitly as a virus.

My general theory since 1971 has been that the word is literally a virus, and that it has not been recognized as such because it has achieved a state of relatively stable symbiosis with its human host; that is to say, the word virus (the Other Half) has established itself so firmly as an accepted part of the human organism that it can now sneer at gangster viruses like smallpox and turn them in to the Pasteur Institute. But the Word clearly bears the single identifying feature of a virus: it's an organism with no internal function other than to replicate itself.

(Burroughs, 1985, p48)

In this short paragraph Burroughs, in effect, describes what others later called the meme. He noticed a structural arrangement in the world, and reported it within a literary context well before philosophers and social scientists had

begun to take the idea seriously. This should not surprise us. Not only did McLuhan state that this kind of frontier scouting constituted the primary role of the artist, but one could reasonably expect that writers and poets would notice earlier than most the narrative nature of existence and the fact that our selves seem to hinge upon narrative; the relationship that we therefore have with language; and the fact that language appears to act as though it has a mind of its own. We should also expect them to explore the consequences of these observations for the notion of truth in our life-worlds.

19.5. *The Black Iron Prison*

The third example concerns the later work of Philip K Dick, who spent the last years of his life worried about the consequences of overlaying different layers of truth, and about how truth arrived in our heads; and he constructed a thousand page exegesis in which he tried to work out the consequences of a series of visions he had experienced, which (he claimed) contained knowledge he could not have known, and which (he claimed) caused him to take his young son to hospital where doctors saved him from a fatal condition that nobody had suspected he had. This experience took the form of a "bizarre and powerful series of dreams, visions, and voices that flooded Dick's consciousness in February and March 1974 (or "2-3-74," Dick's shorthand for that period) and stood for him as the central -- and, ultimately, inexplicable -- event of his life" (Sutin, 1999, p9). He wrote:

Where (or when) is (or was) the Black Iron world? I was there but am here now. How came I here? Did that world go out of existence? Did this one replace it? Is this world somehow unreal, maybe stretched like a skin over (and concealing) the other? In which case can the black iron world come back?

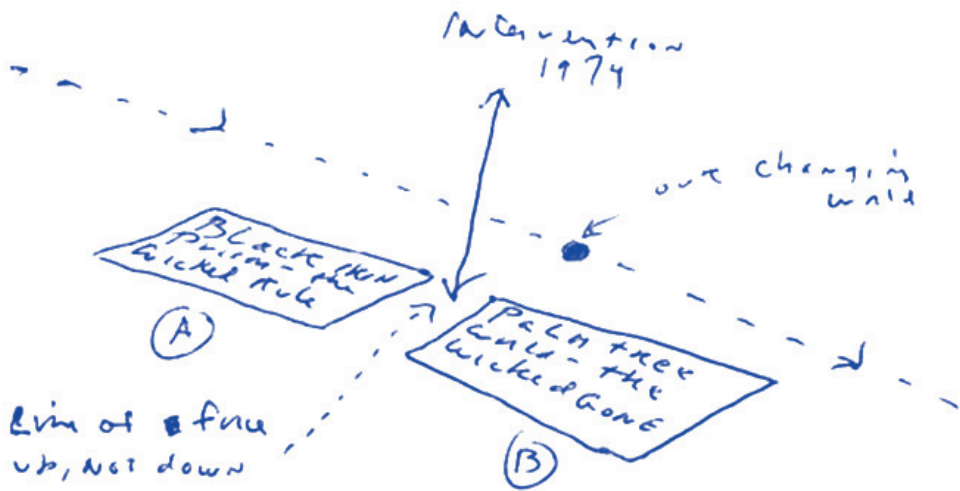
(Jackson & Lethem, 2011, p256)

Dick attempted to make sense of his series of visions, not by believing them, but by modelling them.

Evidently our world is like a movie, the supralunar world is like several stills which do not permutate into one another (change) but remain indefinitely until replaced: a sort of eternal place. All these thousands of years the Urwelt here has been the black iron prison pierced by His advent! Two mutually irreconcilable elements of a freeze frame.

Another model, our world as sphere in motion over "squares" of an unchanging (intrinsically) landscape: Showing our world now "above" the palm tree world, having passed 1974 our time, the moment of intervention. A penetration to the core, now, to the hidden real landscape "below" would reveal it, not the black iron prison. And there would now be a print-out re the second advent (i.e., "Santa Sophia will be born again").

Dick 'modelled' in two parallel senses. He created models in the form of diagrammatic schema to try to explain what had happened, and what it might mean. This process included the creation of actual drawn diagrams, as



A diagram taken from the exegesis of Philip K. Dick

shown above (Jackson & Lethem, 2011, p257). However, he also modelled these beliefs in the sense of trying them on and wearing them to see if they fitted. John Lilly had recommended just such an approach when he wrote

In the province of the mind, what one believes to be true is true or becomes true, within certain limits to be found experientially and experimentally. These limits are further beliefs to be transcended.

(Lilly, 1972)

Lilly did not suggest that one should believe anything, but rather the opposite. From his research in isolation tanks, he suggested a contingent phenomenology. He concluded that one should wear all beliefs lightly while treating new and unexplained phenomena as-if one should believe them, and then observing the results of this contingent believing. Dick attempted to do this in several different ways. He attempted to understand what the phenomena meant, by historical research into philosophy and theology. Through this he came to understand that

Real time ceased in 70ce with the fall of the temple at Jerusalem. It began again in 1974ce. The intervening period was a perfect spurious interpolation aping the creation of the mind. "The Empire Never Ended", but in 1974 a cypher was sent out as a signal that the Age of Iron was over; the cypher consisted of two words: KING FELIX, which refers to the HAPPY (or Rightful) King.

In doing this he provided such a clear explication of Gnosticism that an afterword in later editions of the translation of the Nag Hammadi gospels (Robinson, 1977), he receives a credit as one of the leading twentieth century scholars of Gnosticism. In this way, behaving as-if he regarded the manifestations as true provided the basis for acquiring, processing and communicating a range of new ideas. He also used parts of this bank of ideas as the starting point for his final series of increasingly autobiographical novels: *Valis*, *Divine Invasion*, *The Transmigration of Timothy Archer*, and *Radio Free Albemuth*.

One might argue about where "truth" lies in this process but that argument constitutes, in part, the point I wish to make. Driven by a series of uncontrollable events (whether a series of revelations or a psychotic interlude) Dick had to step outside his life-world in order to try to make sense of what had happened. In doing this he chose not to opt for a dualistic "is/is not" explanation, nor to try to find out if his experience "was true". Instead he delved into questions about what truth might mean in this context, and in so doing he constructed a set of elaborate diagrams, many of which contradicted others in the set. He tried them on, never feeling completely comfortable in any of them and, according to several friends played with his almost-beliefs in an amused and self-mocking way. The writer Thomas M Disch said "I thought: interesting - a masterful con that works. He's a professional entertainer of beliefs - in other words a con-man. He wants to turn everything he imagines into a system. And there was his delight in making you believe. He LOVED to make you believe." (Sutin, 1989, p226), From this he drew inspiration while never losing his ability or willingness to act in the consensual world, and never deviating from this belief that he would never uncover "the truth", but could continue his explorations until he died. Which he did.

19.6. Truth out of Nothing

Charles Sanders Peirce does not define truth, but instead offers a "doctrine of fallibilism. It holds that because truth is what would be believed at the end of an indefinitely prolonged inquiry, we cannot be sure that any current belief of ours is true. What we now take to be true and what our inquiries are now concerned with might be very different from what is taken to be true and interesting as inquiry progresses. Hence the final beliefs are independent of us." (Misak, 1991, p132) The importance of Philip K Dick's revelations, then, do not lie in their objective truth, or lack of such, but in how they affected his actions, and how these actions impacted on the world. We should view them as something that might have seemed true to Dick at the time, and might have disconcerted him enough to cause him to embark upon an inquiry into their origins. Dick, quite reasonably, felt plunged into doubt. Peirce believed that

Doubt and belief, although they do have psychological aspects, such as making the inquirer feel comfortable or uncomfortable, are best thought of in terms of habits. A 'belief-habit' manifests itself as an expectation: if we believe H, then we habitually expect the consequences or predictions we derive from H to come about when the appropriate occasion arises. Thus inquirers are thrown into doubt when a recalcitrant experience upsets or disrupts the smooth working of a belief or expectation. As soon as the inquirer is thrown into doubt, inquiry is ignited and

continues until a belief or habit of expectation is re-established. So Peirce characterizes the path of inquiry as follows: belief --- surprise --- doubt --- inquiry --- belief.

(Misak, 1991, p48)

Susan Blackmore might describe Peirce's belief-habits as 'memplexes' (Blackmore, 1999); settled bundles of memes that together provide stable stories for dealing with our life-world. We can see that the original hallucinations caused Dick to lose equilibrium by rendering his current belief-habits or memplexes unsatisfactory as life-explanations and thus unstable. To return to stability Dick had to embark upon a process of inquiry until he could reacquire a habit of expectation. If we accept this then we can see that the "truth" of the original phenomena simply could not matter to Dick and those around him; only their ability to shatter Dick's habits of belief mattered. Moreover the result of Dick achieving a new habit of belief (albeit a new habit that engendered lifelong religious and philosophical exploration) included the creation of his finest novel, *Valis* (Dick, 1981), which itself housed, or embodied, an influential literary meme that continues to cast influence.

We can see a clear example of this in practice in the work of Garret Kramer, an internationally renowned sports coach. He helped lead athletes' training regimes away from concentrating solely on physical exercise into the mental areas of "the inner game" and "being in the zone". In doing this he began to explore how these internal processes worked for athletes and he coined the term *stillpower* (Kramer, 2011) to describe his conclusions. He has come to believe that relying less on thinking rationally, and relying more upon rapid System 1 intuitive action (Kahneman, 2011), the undermind, improves performance and increases consistency. In creating training systems based upon this he has also created a successful company with an international array of clients. His beliefs align with much of the recent research into consciousness and his company's clients' successes offer an informal proof of this research. However, what interests me about his work in the context of this dissertation, revolves around the sources for his beliefs. At the end of his book he writes that

About forty years ago, Sydney Banks had that aha moment. He had a spectacular revelation about the human experience... Now Syd's revelation is not a technique or theoretical model. Quite the opposite. The principles of mind, consciousness and thought rest deep within all of us and can never be taken away. Syd realized this enduring message and perceptive thinkers like George Pransky later ran with it.

(Kramer, 2011, p152)

According to Wikipedia which, in this particular case, seems a suitable vehicle for this information,

The "Three Principles" of Mind, Consciousness and Thought were first articulated by Sydney Banks, a 9th-grade educated welder, born in Scotland, living in British Columbia, Canada in the early 1970s... According to Banks' verbal accounts, as recorded at lectures, he realized the three principles while attending a marriage seminar held on Cortes

Island, in British Columbia, Canada.

The seminar encouraged couples to let their feelings out, be honest, and argue with one another. Discouraged with the process, Banks and his wife prepared to leave the seminar. As they were doing so, Banks became engaged in conversation with a therapist also attending the seminar.

Describing himself as an insecure mess at that time, Banks began elaborating on all the ways in which he felt insecure. The therapist's response, I've never heard such nonsense in all my life, was a revelation to Banks: What I heard was: there's no such thing as insecurity, it's only Thought. All my insecurity was only my own thoughts! It was like a bomb going off in my head ... It was so enlightening! It was unbelievable ... [And after that,] there was such beauty coming into my life.

Subsequently Banks wrote a number of books, but they make no attempt to explain this revelation, or to situate it within any larger discourse. Indeed, the book that Garret Kramer calls "one of Sydney Banks most poignant books, *The Missing Link*" and which "sits on both my writing desk and my nightstand at home" (Kramer, 2011, p153) consists of a short series of epigrams. Page thirteen, for example, contains the following three paragraphs:

Words are merely a form. Listen
not to words, but to that which
words attempt to convey.

Remember... it is not the clay that
represents the sculpture, but the
form the artist has molded it into.

Just like the clay of the sculpture,
thought is not reality. However,
our personal realities are molded
via our thoughts

These words, and another hundred pages or so of paragraphs like them, apparently drawn from thin air, have succeeded in enabling Garret Kramer to train international athletes and, more impressively, to enable him to help athletes who have lost their form to recover their self-belief and return to winning. In addition "the Three Principles" have inspired a large international therapy movement named Health Realization, developed in the 1980s by Roger C. Mills and George Pransky and still growing.

The results of Philip K Dick's and Sydney Bank's personal revelations differed greatly. Dick drove himself to link them to other events and belief systems, and to try to locate them within broader frameworks. They led him to a quest that he himself acknowledged could never end. Sydney Banks, on the other hand, seemed to ask very few questions about what had happened to him and to give lectures wherever he could to tell people the message he had received. Viewed as memes, though, both entered the public world and both achieved influence and continue to influence people after their creators' deaths. As stories that incite others to actions in the world, that

have effects, and whose effects multiply and mutate as they spread, they appear to have arisen from nothing, whatever their truth value, and to have achieved a life of their own.

19.7. *When Silence Enters the Room*

When we view ideas and truths, within our life-worlds, as memes and interactions between memes, either directly or through signals housed in artefacts, we can make an important advance in the way that we speak of things. We speak of other people influencing us, and of the ways that we influence them. When we say this we make use of shorthand that, in reality, describes a network of interactions between you, me and our shared life-reality. When we speak of "you" and "me" we again describe networks of interactions: in this case between our habits of thought, the memes that influence them, and our analytical minds that reflect upon these. Habitually we regard you and I as figures and our shared life-reality as the ground upon which we interact. However, as we have seen earlier, figure and ground perform an endlessly shifting dance in which each can take the other's place. Parts of the ground can rise up to become figures while some figures can move into the background.

We define ourselves, and others we recognise as like us, as actors; as agents who can act upon us. We define ourselves as actors because we believe that we can act upon others. In both cases *acting upon* implies the ability to cause a definable and observable change in the other. I act upon you by frightening you, causing you to go pale and jump backwards. You act upon me by getting angry because I frightened you, causing me to apologise. If we bring over from computer games the concept of the non-player character, we might see that it makes a useful sense to adopt the intentional stance towards certain persistent memplexes, and to treat them as-if we regard them as actors. Daniel Dennett defines the intentional stance as

the strategy of interpreting the actions of an entity (person, animal, artefact, whatever) by treating it as if it were a rational agent who governed its "choice" of "action" by "consideration" of its "beliefs" and "desires". These terms in scare quotes have been stretched out of their home use in what's often called "folk psychology", the everyday psychological discourse that we use to discuss the mental lives of our fellow human beings. The intentional stance is the attitude or perspective we routinely adopt toward one another, so adopting the intentional stance toward something else seems to be deliberately anthropomorphising it...

(Dennett, 1996, p27)

Music acts upon us in a similar way to those that we habitually define as actors or agents. It can make us cry, it can make us feel united. Usually, though, we feel that we may not have the ability to act reciprocally upon Music. The musician and composer Robert Fripp believes that we do have the ability to act upon Music, and also upon Silence.

Music is Silence, speaking. In developing an instrumental facility, a musical capacity, we become increasingly available to give Silence a

voice. The more we are able to be quietly present, the more directly and truly we are able to speak for Silence; and, at a certain point, to speak as Silence.

It is quite an experience to feel Music entering the notes we are playing. Something like, a good Friend entering the room, approaching and embracing us.

(RF online diary, 29/04/2014)

He suggests that:

when the qualitative world enters that of the quantitative; when the (non-existent) barrier between perception and actuality falls away - in an instant - and there we are: where we are. Occupying a moment in time, while out of time. Sitting with a Presence which is not constrained by time, but which enters the time-stream to visit, reminding those of us who live mostly-here that we are ourselves only visiting.

...the act of music is primarily social. Something remarkable acts through Music, moving from outside the time stream into the flow of events. This provides an energy, a certain something, that is available within the performance and becomes available to the audience.

(RF online diary, 30/04/2014)

From the perspective of traditional, dualistic thinking this might seem fanciful and even pompous. From a triadic and memetic perspective this might appear to offer us new ways of approaching the memes that surround us, and an approach to reconfiguring or expanding the idea of figure and ground to include the third element that makes the temporary differences between figure and ground possible.

19.8. *The Self as Stories*

As I have tried to demonstrate in an admittedly short series of sketches, research into human consciousness during the last thirty years has showed that we think less than we think we do, and that thinking does not have the leading role in our actions that we usually ascribe to it. A number of books have gathered this research together in a much fuller form than I could here (Nørretranders, 1991; Claxton, 1998; Hood, 2011; Kahneman, 2011). Tor Nørretranders, for one, described the situation like this.

In recent years, scientific investigations into the phenomenon of consciousness have demonstrated the people experience far more than their consciousness perceives; that they interact far more with the world and with each other than their consciousness thinks they do; that the control of actions that consciousness feels it exercises forms a “user illusion”

(Nørretranders, 1991, pIX).

Consciousness plays a far smaller role in human life than Western culture has tended to believe.

Historical research shows that the phenomenon of consciousness as we know it is probably no more than three thousand years old. The concept

of a central "experiencer" and decisions-maker, a conscious I, has prevailed for only a hundred generations.

(Nørretranders, 1991, pIX)

Current evidence indicates that we possess two parallel mechanisms for thinking. System 1 acts in a fast, intuitive and emotional manner, while System 2 operates slowly and deliberately, in ways that seem rational although retrospective (Kahneman, 2011). If I stand up suddenly at a dinner party, turn red, raise my fists and shout, "Don't you ever talk to me like that!" my actions spring from System 1, or what Guy Claxton has termed the undermind (Claxton, 1998). Later, when I have calmed down and apologise, offering the excuse that the sequence of events triggered off an over-reaction based upon a childhood experience, then my rational mind, my consciousness, has taken momentary control. In the first instance I acted intuitively, with no time to check the appropriateness of my action; and in the second instance, after my mind has had time for retrospective reflection, I created a rational explanation for my actions, one that fits the action appropriately into the narrative that I tell myself and others about "what it is like to be" me. In this way I author myself. However, behind this realisation, the harder problem

is that we are not the authors of ourselves. That we are not is a religious perspective, but also a biological and a social one. Each of us has had many authors, and each of us is engaged, for better or worse, in that same authorship. We could say that the human race is a great co-authorship in which we are collaborating with god and nature in the making of ourselves and one another. From this there is no escape... This is by way of saying that by ourselves we have no meaning and no dignity; by ourselves we are outside the human definition, outside our identity. "More and more", Mary Catharine Bateson wrote in *With A Daughter's Eye*, "it has seemed to me that the idea of an individual, the idea that there is someone to be known, separate from the relationships, is simply an error."

(Berry, 2002, p138)

This accords with the observations of Peirce, McLuhan, Watts and others that we cannot know objects, only the relationships between objects. We live inside narrative. As Don Cuppitt has pointed out "life is time and we are time... For a moment, one enjoys eternal happiness while still living in time... Given that we are what we are, time-bound talking animals pretty much in love with language, that's the nearest to 'heaven' or a state of state of eternal beatitude that we can ever hope to get." (Cuppitt, 2005, p87).

If memes form the fuel that powers our reflective thinking, then our apparently private worlds of thought and emotion have their origins in the time-bound social world. The memes we get infected with from the moment of birth (Blackmore, 2005) arise from interactions between people, and our personal role in this continuous dance involves receiving memes, ingesting them, and then sometimes transmitting them to others in the same form we received them or slightly mutated. We do this directly, or through signals embedded in artefacts. According to Bruce Hood the "self illusion depends on stored information that has been acquired during a lifetime. These are our memories that are constructed as we interpret the world. That interpretation is guided by mechanisms that seek out certain information in the world but

also by those around us who help to make sense of it all. In this way we are continually shaped by those around us." (Hood, 2011, p214)

Bruce Hood also addresses the question of how this all begins, and the vexed question "if we are born without a self then how do we get one?" When observing young babies moving their eyes and taking differing degrees of interest in various elements of their environment, Hood decided that "it seemed unlikely that they had models of the world already encoded in their brains that predicted where they would look next. Rather, at the very beginning everything must be driven by what existed already in the environment to be seen. It is the properties of the external world that compete for the attentions of the eye movement systems in the baby's brain. There was no need for a self in control. Rather, the brain mechanisms that they are born with have evolved to seek out information from the external world and then keep a record of those experiences (Hood, 2011, p213)". From this beginning a complex interactive system emerges and this system, thinking about its own thinking, eventually invents the person it claims does the thinking.

Jerome Bruner explained that as "our experience of the natural world tends to imitate the categories of familiar science, so our experience of human affairs comes to take the forms of the narratives we use in telling about them (Bruner, 1996, p133). The "we" that we imagine "we are" consists, then, nothing but stories: stories that we received uncritically as children; stories we tell about ourselves and each other; stories we receive from others about us; and stories we receive from others about others. In the words of Daniel Dennett, we occupy "centres of narrative gravity".

We consist of stories all the way down. We have no self to call our own; even though we find, on many occasions, that it simplifies our lives to pretend that we do. From the Rosarian point of view, then, each of us springs from, and embodies, an awe-inspiring mighty fiction.

PART 3 CULTURAL TOOLS

This part of the dissertation describes the outcome of a lengthy period of reading and reflection. It does this in a series of chapters that attempt to present the findings as a coherent argument. It goes without saying that the process of research itself happened in a much more chaotic way, with many detours and dead-ends.

Language and Tools (196)

Transmitting and Receiving (205)

Ambient Learning (219)

Tools for Self Authorship (228)

This part of the dissertation addresses several questions that arise from the theoretical view of consciousness proposed in Part 2.

1. Does the analysis in Part 2 have any practical outcome?
2. How can people most effectively learn in a so-called learning society with ubiquitous media and information?
3. What could it mean to live in a learning society?
4. What could we do if we found out that we lived there?

It addresses these by providing a justification and a set of blueprints for a number of practical psychophysical tools that build upon what we have learned and offer ways in which we can guard against the black iron prison and train ourselves as meme-prosumers, with the aim of attaining autonomy, which “is manifested by the release or recovery of three capacities: awareness, spontaneity and intimacy” (Berne, 1964, p158).

It finishes with some practical proposals, and a set of hypotheses by which we might test the value of these proposals.

CHAPTER 20: LANGUAGE AND TOOLS

(196)

We have seen that people, in the way that we usually think about them, do not exist. What we refer to as "an individual" consists of complex networks of processes and actions, centred on a physical body which houses the mechanisms through which these processes and actions become manifest. We use "person" as a convenient label. Arthur Eddington, the British physicist, has said that

The term "particle" survives in modern physics but very little of its classical meaning remains. A particle can now best be described as the conceptual carrier of a set of variates... It is also conceived as the occupant of a state defined by the same set of variates... It might seem desirable to distinguish the "mathematical fictions" from the "actual particles"; but it is difficult to find a logical base for any such distinction. Discovering a particle means observing certain effects which are accepted as proof of its existence.

(quoted in Vedral, 2010, p201)

We can recognise in Eddington's description of how we should regard particles what Daniel Dennett means when he describes people as "narrative centres of gravity". He does not mean that they do not exist; he means that the metaphors of Newtonian physics have become as outdated with regard to people as they have with regard to particles. Physicists no longer think of atoms as tiny, but solid and separate, billiard balls bouncing off each other, they view them as the occupants of a state described by a set of variates. These occupants continue to behave as if they existed but their existence

no longer has any solidity. If we accept the memetic view of human culture, and the people inside it, then we should view human beings as continuing to exist, in the sense that we can name them and observe the results of their actions, but we should not regard their existence as having any solidity. We may acknowledge them as real, without needing to claim them as *really real*. This means, among many other things, that we will no longer find any human activity, any human thought, which we can sensibly regard as unmediated. We have no "we" that existed prior to our absorption of the memes that form the fundamentals of our culture, and the "we" that we think of as us does not sit outside language, because we can know of no outside. We live, in Don Cuppitt's term, in a state of outsidelessness.

We cannot know an outside because stepping outside would involve shedding everything that labels us as people in the first place. Vlatko Vedral explains this with regard to electrons, which he claims exist only as labels. An electron, he writes,

...is ultimately a 'label' to describe the various sorts of behaviour that electrons exhibit when we try to interact with them and manipulate them. Without this label we would have to call an electron something like "You know that particle that does X when we test Y and does P when we look at it in Q and so on'. In this way we can see that labels are awfully convenient and efficient. But Buddhism tells us that we should not confuse the label with the object. More importantly, just because we have a label for something, does not mean that this something is real.

(Vedral, 2010, p200)

If people do not have a pre-existing essence but arise as nodes from within networks of culture, fuelled by memes, then we need to teach ourselves how to understand this, for understanding will prove a necessary prerequisite for proper action within these networks. Marshall McLuhan pointed out that not only do people make their tools, but that these tools in turn remake their users. We need to understand how this works in order to understand how we can live our lives in a world in which everything works in this, and only this, way.

What scientists discovered almost one hundred years ago about the constituency of matter, we later began to realise applies equally to the constituency of consciousness, and the people within which consciousness dwells. This raises questions about how the meanings by which we define ourselves arise, and what part in the process we do, or could, play. We need to look at the nature of tools, what they teach us about the nature of people, and then see whether we can devise tools that will enable people to participate meaningfully in their own co-authorship.

20.1. *Language as the Proto-Meme*

With the advent of language, people gained the ability to extend their voices through space and time. Many animals can capably warn of danger and successfully summon help, but these warnings and distress signals all need to happen over relatively short distances in real time, in the now. With the addition of communally shared language humans became able to refer to absent objects and events rather than to merely gesture towards those

objects and events currently in view; and thus to persuade others by reference to events in the past, to warn of possible dangers in the distance out of sight, and to summon help for a specified time in the future. In addition disagreement and argument became possible. Animals without language can obey a warning cry or not. Humans with language can debate the need to flee or propose and agree upon an alternative strategy. It thus became possible for a speaker in a language group to extend their influence geographically and temporally, as well as within their own group. Only with language does the possibility of social fluidity based on group assessment become feasible.

Language, in the sense that I use it here, has several defining characteristics. Susan Blackmore suggests that we need to

distinguish between true language and other forms of communication. For example, vervet monkeys make at least three different alarm calls to warn others about different kinds of danger. Bees make elaborate dances to communicate information about food sources and distances, and male birds inform others of their impressive status by the length and variety of their songs. These and many other kinds of communication are critical to these animals' lives, but these signals have fixed meanings and cannot be recombined to make new ones. In true language, arbitrary sounds or signs are combined in a potentially infinite number of ways to produce an equally vast number of possible meanings. These new copies are then memes that can be copied from one person to another.

(Blackmore, 2003, p157)

Language, then, hinges upon its ability to be recombined into novel forms. We can extend its definition beyond verbal utterances to include body language, and the codified ways in which we choose to decorate our bodies: temporarily in the form of 'fashion', and more permanently in the forms of haircuts, piercings and tattoos.

The advent of language, however it happened, created an apparently unbridgeable gulf between humanity and other mammals precisely because it created a completely new range of opportunities that other species failed to grasp. Language became the first medium: a proto-tool that introduced new scales into interaction between humans, and between humans and their environment. Marshall McLuhan has noted that "language is a mass medium in all senses. Nobody in particular made it. Yet individuals have always to think and dream and feel in terms of this mass medium". (McLuhan, 2003, p16)

Language became the first tool used by memes, spreading itself between groups of early humanity or pre-humanity, and giving those groups abilities of collective improvisation hitherto unavailable to any creatures on Earth. We might note, at this point, that human beings have always lived within, and as part of, social groups. People have always gained a sense of individuality (to the extent that they have) *after* becoming socialised into a group, and not all groups have required the same feelings of individuality from their members as our contemporary society. All social groups, however, live within language, for language (whatever language) forms the currency of their social interaction.

McLuhan notes that "language is a mass medium in all senses". What we think of as humanity, what we think of as human culture, evolved within the medium of language. We must therefore put aside any notion that there exists now, or

existed at any time in human history, the possibility of unmediated communication of any complexity. (I phrase it this way because we may find plausible arguments concerning the possibility of simple unmediated communication at the very boundaries of sociality, as when a mother comforts a three month old baby by cooing and stroking as part of its preparation for entering the social world, or when watching relatives murmur and stroke someone semi-conscious and dying, as a way of helping them leave the social world.) We have not arrived at a point in history where we live mediated lives; on the contrary, all people throughout history have always lived at that point. Throughout the entire history of what we recognise as humanity, people have always perceived the "natural" through processes of mediation.

20.2. *Writing & the Invention of Individuality*

If the invention and rapid adoption of language created a mass medium through which conversations could travel, and opinions could gain currency by calling forth an echoed assent from distant listeners, we might expect the invention of writing to have an equal or even more profound effect. Writing passed through many stages from so-called proto-writing to the initial alphabets created in Mesopotamia, around 3200 BCE, and Mesoamerica sometime around 600 BCE. The creation of the Ancient Greek alphabet, however, signalled a radical break with all previous cultures. The Greeks modified the Phoenician alphabet to include both vowels and consonants, and in so doing invented the first completely abstracted medium for codifying human communications.

The Greek alphabet enabled its users to store thoughts, ideas and orders in one place and time and then retrieved and accurately decoded in almost any place and at any time later. This process required no direct or immediate link from the speaker to the hearer. Moreover the literate had the ability to store their own thoughts and ideas for later retrieval, and so to externalise their own memories and keep them safe from forgetfulness. Individuals could now seek to immortalise their own thoughts, which they could differentiate from the thoughts of others.

Out of these abilities, and the habits of mind they engendered, developed the concept of the individual self. As Ivan Illich and Barry Sanders have pointed out, the "self is as much an alphabetic construct as word and memory, thought and history, lie and narration. Narration and the self in the twentieth century have become as inseparable as the epos and its singer in oral times: the writer spins the story as part of his self." (Illich & Sanders, 1988, p71) Marshall McLuhan argued something very similar when he noted that one of "the strange implications of the phonetic alphabet is private identity. Before phonetic literacy, there had been no private identity. There had only been the tribal group. Homer knows nothing about private identity; Homer's world is that of the acoustic epic, the tribal encyclopaedia of memorized wisdom". (McLuhan, 2003, p229)

Homer did not write the Iliad and the Odyssey. Others transcribed them after his death, and they formed some of the first transcriptions to follow the invention of the Greek alphabet. At the time of their composition only constant retelling could keep oral poetry alive. If an epic ever fell from favour, or

people forgot it or stopped telling it then it would fade away, never to reappear. Only with their transcription into the new writing could poems have an autonomous and guaranteed life of their own, regardless of how often people thought of them. Only after scribes had noted them down did they become fixed, with an approved text with clearly demarcated boundaries. In the older oral tradition poets constructed their poems using formulaic phrases that both the orator and the audience could remember and that the orator could use as the basis of extemporisation. In the newer written tradition, memory plays no part, and therefore emphasis gets placed on the unusual and evocative phrase, and the unique individual poetic voice. Writing, with its single correct reading, favours the individual turn of phrase, and thus helps create the individual.

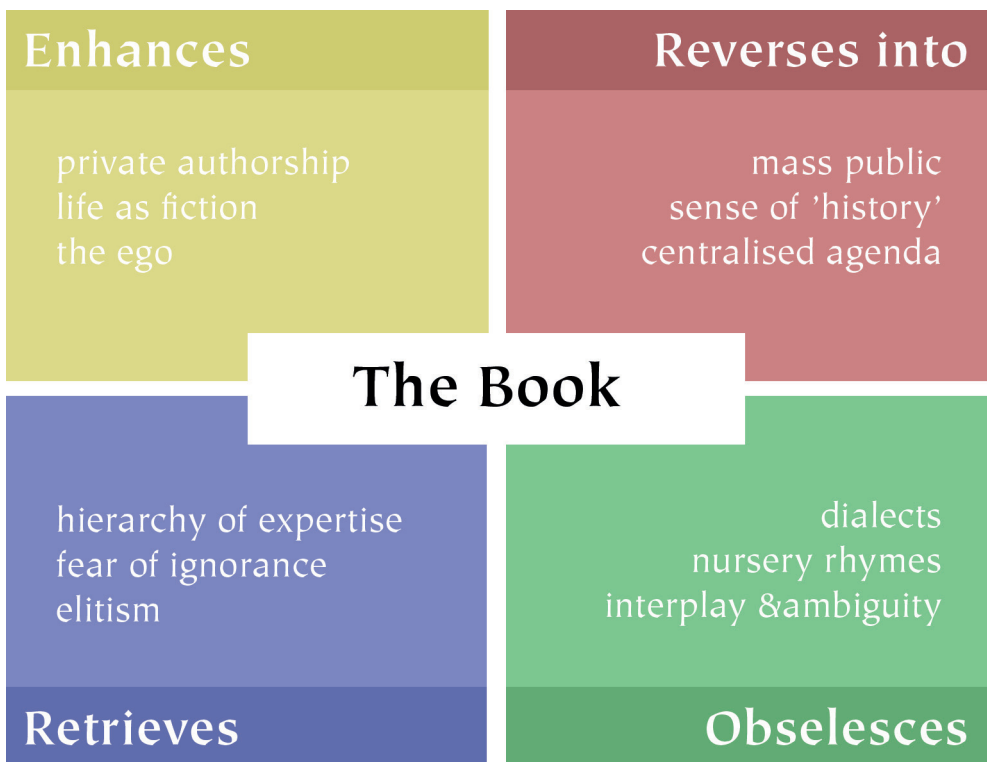
In this way, people also developed fixed boundaries and correct readings when their rulers began to govern by use of literacy. What people previously gave and received orally, while subject to the gradual decay of human forgetfulness, became permanently written down, and available for a further reading whenever an authority called one its members to account.

20.3. Extending Ourselves

With writing, the social landscape changed dramatically and the balance of human possibilities altered significantly. Those in authority extended their voices across their lands and, through their ability to have their decrees heard verbatim wherever they wished, they extended their personal influence. McLuhan has suggested that this process of extension has applied to every medium invented since writing. "Any medium of communication is, like an art form, an extension of one or more of our senses. Speech alone is an extension of all of our senses at once. The mix or proportion of senses made external to us..., the ratio or proportion or mix of our senses involved in speech or radio or photography, imposes non-verbally the parameters or frame of all human operations. The unspoken and even subliminal assumptions in any pattern of human association are dictated by the available means of codifying experience and of moving information. (McLuhan, 2003, p17)

McLuhan makes three key arguments here. Firstly he suggests that we should regard "technologies as extensions of our own bodies, of our own faculties, whether clothing, housing, [or] the more familiar kinds of technologies like wheels, stirrups, extensions of various parts of the body." Secondly, to explain why we should regard them in this way, he suggests that our "need to amplify the human powers in order to cope with various environments brings on these extensions". Thirdly, looking at the consequences of technologies, he suggests that each extension of human capacity "at once rearranges patterns of human association and, in effect, really creates a new environment which is perhaps most felt although not most noticed in changing sensory ratios and sensory patterns." (McLuhan, 2003, p57)

McLuhan regards the implicit relationship between man and tools as "the deification of man". Ernst Cassirer also noted the almost religious significance given to tools. "As soon as man employs a tool, he views it not as a mere artefact of which he is the recognized maker, but as a Being in its own right, endowed with powers of its own. Instead of being governed by his will, it becomes a god or daemon on whose will he depends - to which he feels



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himself subjected, and which he adores with the rites of a religious cult. Especially the ax and the hammer seem to have attained such religious significance in earliest times". (Cassirer, 1946, p59) In extending aspects of human ability, then, a sense of confusion sets in as the tools begin to appear to embody an external "deified" power, and cultures thus come to live in awe and fear of their own artefacts. As we have noted previously, figure and ground affect each other in a reciprocal dance.

This should not surprise us if we consider McLuhan's concept of the human sensorium; his realisation that we do not use our senses in the same ways and to the same extent in all contexts, and at all times in history. This in turn relies upon our understanding that we can view thought and activity, as Charles Sanders Peirce suggested, largely as a set of habits. We absorb many of these habits in the form of memes, and these govern what, in usual circumstances, we regard as common sense. Having thrown part of ourselves out onto the ground, we easily forget what we have done, and regard our externalised power as a genuine object ready-at-hand that wields power over us. McLuhan makes a subtle point that many people have mistaken for technological determinism (cf Stearn, 1967). Although sometimes accused of doing so, he does not suggest that media, whether writing, television or the internet, "determine" our thoughts or "make us" do things. He argues, rather, that the media we create change the ratios in which we use our senses, prioritising one or two over the others, and thus change and shift the nature of our lived-world; both the social landscape which we inhabit and the ground upon which we walk as figures. Given that usually, in our everyday dealings, we treat this ground as invisible, we almost always fail to notice the particu-

lar effects our sensorium exerts on us, or the changes brought to bear on the sensorium. The nature of writing, for example, requires that one character, and one word, follow another. This linear nature, McLuhan argued, gave rise to certain habits of mind that also privileged linearity. Chains of cause and effect, and rhetorical points constructed from logic that proceeds step by step, seem self-evident and normal to cultures steeped in literacy, while simply not appearing at all in many orally based, tribal cultures whose reasoning proceeds along very different paths.

20.4. Tools, Emotions & Reason

Very rarely has a tool ever served only one purpose. Nor do tools necessarily have the effect that people intend or expect. Van Dyke Parks illustrated this neatly when he described meeting the silent movie star Lillian Gish as a boy.

I said, "Ms. Gish, weren't you apprehensive when you heard that talkies were coming?"... She turned and said, "That's a very good question. Actually, when we heard that sound was coming to film we didn't call them talkies. We all just assumed that when sound came to film, it would all be music."

(Mojo, 2011: online reference)

The silent movie industry welcomed the coming of sound because they guessed wrong. They thought this new tool would enhance their art. Instead, within a couple of years, it destroyed it, and created a new method of film-making with a new balance between the senses and an entirely new grammar.

Tools evolve as people find new ways of using them, or as their very use suggests new problems that invite further invention. As the proto-meme and the original tool, language has always developed and evolved. Dialects, slang and specialist vocabularies all come and go over time. These changes can often reveal underlying changes in the surrounding culture, as Raymond Williams noticed when he plotted the historical developments in the meanings and use of a set of key political and social terms in the book *Keywords*. He described this as "the record of an inquiry into a *vocabulary*: a shared body of words and meanings in our most general discussions, in English, of the practices and institutions which we group as *culture* and *society*." (Williams, 1976, p15) He aimed to demonstrate the ways in which words ranging from *art* to *work* had changed, and sometimes inverted their meanings, over periods of time; and how we can use this knowledge to analyse changes in thinking and underlying social beliefs. However, he makes it clear that he does not "mean that the language simply reflects the processes of society and history. On the contrary ... important social and historical processes occur *within* language, in ways which indicate how integral the problems of meanings and of relationships really are. (Williams, 1976, p22)"

More recently the theologian Don Cuppitt has attempted to plot changes in contemporary religious and spiritual belief by examining the ways that people use key phrases in their everyday speech (Cuppitt, 1999; 1999; 2000). He "collected and analysed a number of new idioms occurring in everyday speech, all having to do with 'life'. He contends that our very vocabulary illustrates how, unconsciously, we are already moving from a God-centred to a Life-centred religion. In other words, without our realising what is hap-

pening, we are creating and enunciating through our everyday language a new theology of life." (Geering, 1999)

Williams and Cuppitt had different purposes in mind for their explorations. Williams wanted to inform and deepen a theoretical debate on the English socialist left, whereas Cuppitt had a more action-based and bottom-up project in mind. He wanted to find out what people actually believe, which may differ greatly from what they say they believe when questioned, in order to demonstrate that the most interesting post-religious developments currently occur outside the arenas of theoretical debate. To put this another way, Williams believed that one needed a theory to begin the process of research and analysis, whereas Cuppitt believes that one can develop theories during and as part of the process of research. He points out that

Ordinary-language philosophy was prominent in Britain for a short period after the Second World War, the leading practitioners being Wittgenstein, Gilbert Ryle and J L Austin. Wittgenstein in particular introduced the idea that there is nothing deeper than ordinary language. It already presupposes - it already has built into it - our basic, communally-evolved sense of ourselves, our lives, our world, our knowledge, and time and space.

(Cuppitt, 2000, p1)

Adopting this approach for our own purposes we can discover something curious about the ways in which people use language when speaking about their emotions and feelings. We can notice that, in conversation, people almost always use a language to describe their emotional relationships with other people as though they wished to map them onto a three dimensional landscape. The language people use to describe their social relationships involves a pervading sense of depth and distance. People have "close" friends and feel a need to "get closer" to potential friends and lovers. When they "fall" in love, they might describe themselves as feeling as "close as two people can get". Similarly, people claim that they feel "distanced" from someone they no longer feel much in common with, and may describe how the two of them have "grown apart". People describe moments of joy, ecstasy and reverie as "feeling high" and they describe depression as "feeling low". They experience "deep depressions". They have "peak experiences" and suffer "troughs of despair". People "grow" spiritually, or they simply "grow up".

On the other hand, people talk about matters of logic and rational information using the language of flat, two dimensional space. You can, perhaps, find the planned car-park shown "at the bottom left hand corner" of the map; and the applicable rate of value added tax shown in "the fourth column". We use two-dimensional constructs as metaphors, as when we describe a co-worker as performing her tasks so well that she "is off the chart". When trying to advance our ideas in an organisation we may feel "boxed in" or "cornered". We may need to find a new "angle", and we may thus feel a need to think "out of the box". In English the words high and low feature in both two dimensional and three dimensional analyses, and so they also appear here. We talk of people being "higher-ups" when they occupy a position near the "top" of a hierarchy, and we would describe a child as "bottom" of the class if they have the "lowest" scores in a test.

Our emotional intelligence, then, seems to raise within us feelings of spatiality best described in the language of 3D, while our rational and logical interactions seem planar, and best dealt with in the language of 2D. We may conclude, following the example of Don Cuppitt, that this discrepancy has significance. In our case we may presume that this significance concerns not just the ways that we use language differently in each case, but also how these differences will lead us to approach, and find uses for, other tools, including emerging tools such as synthetic worlds.

Many people have, in their own ways, regarded language as the proto-medium. Ivan Illich traced a similar trajectory as McLuhan from the creation of language to the writing of computer programs, although he referred to what resulted at each stage not as media but as tools. Both Illich and McLuhan referred to the same sets of interlocking social phenomena: the gradual outsourcing of human capacities to physical machines or social arrangements, and the subsequent feeling that these have appeared to us as objects ready-at-hand in the environment. Illich notes that "tools are intrinsic to social relationships. An individual relates himself in action to his society through the use of tools he actively masters, or by which he is passively acted upon. To the degree that he masters his tools, he can invest the world with his meaning; to the degree that he is mastered by his tools, the shape of his tool determines his own self-image." (Illich, 1973, p34)

21.1. Industrial Media, Industrial Tools

People live with their tools and their world in a triadic bonding. People create tools to deal with perceived problems or issues within their environment. Successful tools then become absorbed into the social environment where they change at least part of the ground of existence. This ground, as it shifts and changes, privileges some human perceptions and human habits, bringing them to the foreground, while diminishing others. Thus people create tools, which bring forth new social landscapes, which change the people who live in them, who in turn create new tools to deal with the new problems they now perceive.

Enhances

centralised metropolis
long distance travel
industrial output

Reverses into

city as beehive
mass surveillance
fear of untamed nature

Electric Light

the evening promenade
the reading room
safe passage

darkness
bifurcated sleep
seasonal rhythms

Retrieves

Obsolesces

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Neil Postman echoed this view that technology changes society in ways that people do not recognise.

Anyone who has studied the history of technology knows that technological change is always a Faustian bargain: Technology giveth and technology taketh away, and not always in equal measure. A new technology sometimes creates more than it destroys. Sometimes, it destroys more than it creates. But it is never one-sided. The invention of the printing press is an excellent example. Printing fostered the modern idea of individuality but it destroyed the medieval sense of community and social integration. Printing created prose but made poetry into an exotic and elitist form of expression. Printing made modern science possible but transformed religious sensibility into an exercise in superstition. Printing assisted in the growth of the nation-state but, in so doing, made patriotism into a sordid if not a murderous emotion.

(Postman, in Clough et al, 2013, p8)

Both McLuhan and Illich use their chosen terminology in ways that extend beyond the standard colloquial usages. Both regard organised social arrangements as obeying the same rules as manufactured devices, seeing the institution of compulsory formal education, for example, as a mass medium and an industrial tool, respectively. The term 'formal education' describes a bundle of ideas that have successfully replicated and mutated themselves across time and space for nearly two hundred years. We can view all other mass media and industrial tools, whether physical objects or institutional

arrangements, in the same way. We can thus fairly use the term "extended phenotype of a meme" to describe both what McLuhan viewed as media and Illich viewed as tools.

Marshall McLuhan noted that "the personal and social consequences of any medium - that is, of any extension of us - result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology". (McLuhan, 1964, p15) The last two hundred years have seen the largest and most rapid changes of scale in human affairs in recorded history. The industrial revolutions of the nineteenth century introduced not just new production methods but new patterns of consumption in which people learned to want the goods and services best suited to industrial production. As Charles Sanders Peirce noted, "Modern science, with its microscopes and telescopes, with its chemistry and electricity, and with its entirely new appliances of life, has put us into quite another world; almost as much as if it had transported our race to another planet." (Buchler, 1940, p297)

The effects of this new electric world spread rapidly the growth of industrial machinery to the development of new industrialised social arrangements, as people learned to depend on the new professions, from engineers to teachers. McLuhan pointed out that "A.N. Whitehead was fond of saying that the great discovery of the nineteenth century was not this or that invention but the discovery of the technique of invention... Namely, begin with the solution to the problem, and then find out what steps lead to the solution.in other words, work backwards." (McLuhan, 2003, p29)

In 1875, for example, in Russia, the 'Yablochkov candle' successfully demonstrated the possibility of street lighting, and by 1880 three cities had working street lighting. By 1890 over 130,000 arc lamps lit streets in the USA, while Paris and London also had thousands. Electric lighting abolished the difference between day and night in a way that gas lights never had, and began what McLuhan termed the 'electric age'. The information age which we currently inhabit began in Newcastle upon Tyne, Cleveland, Ohio, and Wabash, Indiana when public lighting combined with private lighting to change people's habits and to push the effects of the Earth's rotation and the passing of light and dark to the peripheries of cultural life. Darkness became a choice. Factory workers, bartenders, taxi-drivers, and millions of others, could now try to find work at any time of day or night.

Like the railroads before, and the industrialised highway systems later, electric lighting only made sense if organised on an industrial scale. These systems did not just provide the services that formed their superficial purpose; they also provided an incontrovertible argument for increasingly large-scale organisation. They all had the unintended consequence of imposing themselves on the social environment as what Illich termed 'radical monopolies'. Once a highway system has exists it becomes impossible not to use it because it will increasingly replace more local facilities with bigger and better facilities situated further away. Shopkeepers will take advantage of the highway system to expand to bigger and cheaper premises on the edge of town, encouraging and then later forcing customers to drive rather than walk there. Illich defines a radical monopoly as "one product that goes far beyond what the concept of monopoly usually implies. Generally we mean by 'monopoly' the exclusive control by one corporation over the means of producing (or selling) a commodity or service... By 'radical monopoly' I mean the dominance of one type of product rather than the dominance of

one brand. I speak about radical monopoly when one industrial production process exercises an exclusive control over the satisfaction of a pressing need, and excludes non-industrial activities from competition". (Illich, 1973, p65-66)

Industrialised health services and education have gone through just such a transformation into radical monopolies. Most workers in the twenty first century cannot take time off work if or when they feel sick. Instead they have to travel to a licensed professional and pay to have themselves declared officially sick, or else they risk losing their job. Whereas people once attended university because they wished to learn or to join a community of learners, today people have to sign up for a university degree course in order to get a certificate that qualifies them to join a workforce whose purpose may have little in common with the university department where they studied. In the terms that Illich delineated, these people no longer use these public tools for their own benefits but rather they get pushed into these institutions as raw material and then become shaped and defined by them. Illich points out that a characteristic shift from verbs to nouns has accompanied this transition: "the salaried employees, whether workers or bureaucrats, say that they have work, the peasants say that they do it... Not only what men do but also what men want is [now] designated by a noun. 'Housing' designates a commodity rather than an activity. People acquire knowledge, mobility, even sensitivity or health. They have not only work or fun, but even sex." (Illich, 1973, p114) Certainly during "the latter part of the twentieth century we have witnessed a considerable shift within public language - manifested in an obsession to convert verbs in to nouns" (Boulting, 2006, p127) This reflects the deification of industrial tools and the resulting attempt to describe our lives in terms of mechanical components. We accept that we need to "get an education" rather than learn what we need. We "get a job" rather than work to live. Nouns thus replace verbs in our discourse and, as noted earlier, this imposes drastic changes on how we think, and feel able to act, within our life-world.

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21.2. *The Education Industry*

In *Deschooling Society* Ivan Illich argued that "the institutionalization of values leads inevitably to physical pollution, social polarization, and psychological impotence: three dimensions in a process of global degradation and modernized misery." He demonstrated the ways in which "this process of degradation is accelerated when nonmaterial needs are transformed into demands for commodities; when health, education, personal mobility, welfare, or psychological healing are defined as the result of services or treatments (Illich, 1971, p1)." He suggested that "Neither new attitudes of teachers toward their pupils nor the proliferation of educational hardware or software (in classroom or bedroom), nor finally the attempt to expand the pedagogue's responsibility until it engulfs his pupils' lifetimes will deliver universal education. The current search for new educational funnels must be reversed into the search for their institutional inverse: educational webs which heighten the opportunity for each one to transform each moment of his living into one of learning, sharing, and caring (Illich, 1971, pIV)." He regarded education as an industry, and he regarded that industry as imposing a radical monopoly on vital aspects of people's life-worlds.

Education became fully industrialised in the early years of the twentieth century, as part of a second wave of Taylorism. Taylorism aimed to replace the processes of manufacture undertaken informally using inherited skills by pre-planned automated processes using unskilled labour. Initially this happened in manufacturing industries. Frederick Taylor laid down the four underlying principles of this approach in his 1911 book *Principles of Scientific Management* where he stated that

First. They develop a science for each element of a man's work, which replaces the old rule-of-thumb method.

Second. They scientifically select and then train, teach, and develop the workman, whereas in the past he chose his own work and trained himself as best he could.

Third. They heartily cooperate with the men so as to insure all of the work being done in accordance with the principles of the science which has been developed.

Fourth. There is an almost equal division of the work and the responsibility between the management and the workmen. The management take over all work for which they are better fitted than the workmen, while in the past almost all of the work and the greater part of the responsibility were thrown upon the men.

(Taylor, 1911, pp36-37)

Taylor received much praise for "bringing science into the workplace", and for helping complete the transition from the old-fashioned rural ways of life to the machine-led future. Many businessmen, and the equivalent administrators in public services, began looking eagerly for other places where they might apply his theories. Indeed Taylor's assistant Morris Cooke made specific efforts to insert his methods into public services. Their only real success lay in education, where Cooke managed to get schools to start subcontracting their faculty, thus initiating the "adjunct professor" movement.

In a paper written in 2001 Jonathan Rees said that

In 1962, the historian Raymond Callahan wrote the best-known account of how scientific management has affected American schools. Much of his book recounts the influence of Taylor's ideas on educational administration -- everything from how to make better use of buildings and classroom space to how to standardize the work of janitors. Other aspects of scientific management in education treated students like workers. "The ability to add at a speed of 65 combinations per minute, with an accuracy of 94 percent," wrote one reformer, "is as definite a specification as can be set up for any aspect of the work of the steel plant" (John Franklin Bobbitt quoted in Callahan, 1962: 81). Another line of reforms required teachers to document their teaching activities in order to minimize "waste."...

The best example of Frederick Taylor's ideas at work in education today are high-stakes standardized tests -- tests which have a significant effect on funding for schools and the careers of individual students.

The growing acceptance that schools formed an effective site of industry, and that administrators could view pupils as raw material they employed staff to reshape, according to the short but complete instructions from the planning room, led to the anti-school movement of the 1960s and the later home schooling movements. We can view these as attempts to reclaim a lived-world where learners can produce as well as consume their own lives, and as early attempts to separate learning from education.

The growth of a multinational education industry serves as one example of what Neil Postman has described as a technopoly, a kind of social arrangement where the majority of people believe that "the only goal of human labour and thought is efficiency; that technical calculation is in all respects superior to human judgment; that in fact human judgment cannot be trusted, because it is plagued by laxity, ambiguity and unnecessary complexity; that subjectivity is an obstacle to clear thinking; that what cannot be measured either does not exist or is of no value; and that the affairs of citizens are best guided and conducted by 'experts'." (Postman, 1992, p51)

McLuhan, Illich and Postman all recognised the same sets of social changes, and analysed their causes in broadly similar ways. They disagreed sharply in the ways they felt about these changes. McLuhan saw himself as an explorer, claiming that "I am an investigator. I make probes. I have no point of view. I do not stay in one position." (Stearns, 1967, pxii) Illich concentrated on persuading the third world to avoid the industrialising errors of the West, suggesting that, once started, the errors would prove almost impossible to undo. Postman appeared to counsel despair and, where possible, withdrawal.

The responses of Illich and Postman have in common a belief that the situation, as they saw it, would simply get stronger and bigger unless, or until, it collapsed under the weight of its own contradictions. As Illich correctly noted nothing ever gets uninvented and the genie, once out of the bottle, never gets put back. The invention of nuclear weaponry and, later, nuclear power illustrates this clearly. A world with no knowledge that nuclear weaponry might one day exist differs profoundly from one where treaties have abolished nuclear weapons. In the former, nuclear weapons occupy the same fantasy space as time travel. In the latter, not possessing nuclear weapons forms a political or social choice. Not stockpiling them differs radically from not knowing how to make them; and once invented, nothing can ever make nuclear weapons a fantasy again. Illich concentrated his work in the Third World because he believed that radical monopolies, once established, take on a life of their own and develop through their own internal logic, outside of human control. He believed that the only hope lay in preventing radical monopolies from becoming established where they did not already exist.

Given this, what can we make of our current situation from the perspectives of Illich and Postman? We might say that their prophesies have proved more accurate than they could have imagined and that the system they described has indeed collapsed under the weight of its own contradictions. They described a system that organised itself around ever-larger mechanical devices which demanded monopoly rights over scarce resources, imposed uniformity on users and non-users alike, and constrained choice. In the last thirty years we have, in the words of Nicholas Negroponte (1995), begun the move from "atoms to bits", and perhaps many (but definitely not all) of the rules have changed.

21.3. *From Industry to Information*

The emerging digital world does not constitute a whole new beginning as some have argued (cf Rabinovitz & Geil, 2004); rather we should see it as the third stage of McLuhan's 'electric age', itself an extension of the nineteenth century programme of mass industrialisation. We have passed through the radio phase, with its emphasis on the auditory which saw the introduction of recorded music. We have passed through the television phase, with its emphasis on one-directional communication organised and supervised by licensed professionals. We have now moved into the internet phase, where communication has grown chaotic, frenetic and multi-directional. The introduction of networked computing, and the increasing capacity of data storage have had profound effects on the memes that governed industrialisation, and continue to wreak havoc with the business, educational and political assumptions that professionals have grown up with and absorbed as common sense. This new system relies on abundance and redundancy, not scarcity. It works against custodians and guardians and privileges direct access. It works against the limited edition and privileges the unlimited and indistinguishable copy. It bends and challenges previously accepted ideas of intellectual property.

McLuhan noticed this very early on. He prophesied the end of work and the reinstating of roles which "in effect, means having more than one job. A housewife is a role-player because she has many jobs, as do farmers and many other people in the community. They are not essentially job-holders but role-players." (McLuhan, 2003, p190) This results, in large part, from the human sensorium shifting away from several centuries of the visual and linear (back) into a more auditory and tribal culture. This, he said, meant that "we are moving into an age of play which will bring many new patterns of work and learning". (McLuhan, 2003, p190) He argued that, among these changes, we would see the functions of producers and consumers merge, especially in the cultural sphere, since "the inevitable mode of the electronic forms of information movement and of ensuing patterns of human expression and association are decisively producer-oriented. The audience is increasingly involved in the creative act, to the scandal of elites who for so long have assumed a consumer orientation to the arts." (McLuhan, 2003, p31) Alvin Toffler named these new active audiences "prosumers" and predicted their rise thus:

Producer and consumer, divorced by the industrial revolution, are reunited in the cycle of wealth creation, with the customer contributing not just money but market and design information vital for the production process. Buyer and supplier share data, information, and knowledge. Someday, customers may also push buttons that activate remote production processes. Consumer and producer fuse into a prosumer.

(Toffler, 1990, p233)

Much of this has happened and much more seems on the verge of happening. Most people in Europe, North America and Asia now live in a condition of steady-state learning, which largely takes place informally within communities. Within the last five years, for example, people have taught each other how to operate smartphones, and how to upgrade their operating systems. They

Enhances

continuous contact
response times
navigation

Reverses into

fear of isolation
unending demands
adult as monitored child

Mobile Phone

village pub
telegram service
knowing where you are

excuses for lateness
telephone books
maps

Retrieves

Obsolesces

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have come to understand the term 'app store' and found out how to use their phones to navigate round one, and how to find and download apps. People have learned to rely on social networks to keep in contact with family and friends, and also to make new friends. The fact that Facebook only opened internationally in October 2005, and then only to twenty one universities in the United Kingdom, indicates the speed of these changes. It did not make itself available to the wider public until September 26, 2006, at which point the company allowed anyone aged thirteen or older with a valid email address to join. On April 24, 2012, less than five and a half years after it began, Facebook claimed to have over 900,000,000 active users.

Facebook represents the tip of a huge iceberg, as "being digital" moves rapidly from a niche activity mainly pursued by young people to a mainstream activity both at work and at home. In January 2012 a survey suggested that 81% of Americans had banked online in the preceding twelve months. 12% of American adults now do their reading using e-readers, and Amazon has reported that in the UK, at the end of 2011, its downloadable eBooks outsold its physical hardbacks and paperbacks. In formal education serious gaming (games-based or game-like learning tools) constitutes an industry worth at least two billion dollars a year. (Hypergrid Business, online ref)

21.4. *Remixing the World*

Some have argued that these shifts actually cause changes in the structure of the brains of young people (cf Prensky, 2001a, 2001b); a claim that oth-

ers have strongly disputed as a misunderstanding of neurological research. However, others have advanced a more plausible claim: that these shifts cause changes in the social attitudes and willingness for risk-taking in the minds of young people, especially those with long-term exposure to online gaming. Beck and Wade (2006), for example, argue that exposure to multiplayer combat games leads people to value learning by failure as a viable strategy, whereas those brought up in a linear, rational environment have learned to disparage this. Gamers also appear much more willing to say "let's just do it and see what happens" than non-gamers.

These effects should not surprise us. Rather it should surprise us if some such effects do not appear as the sensory landscape in which people lives changes dramatically in a very short period of time. As the human life-world changes rapidly some memes prove better than others at adapting and replicating. Some ideas therefore stop seeming like common sense and start seeming like the kind of ancient mythology that we can safely ignore. The effects of the changes we live through affect us socially as much, or more than, they affect us individually; and mentally much more than physically. We can see this in the movement of hacking culture from the cultural periphery to a much more central position. Hacking has existed almost as long as electric technology, with the first recorded example occurring in 1903 at a demonstration by Marconi (New Scientist, 2011, online reference). The two founders of Apple Computers first achieved prominence in the hacking world as members of California's Homebrew Computer Club where they developed "blue boxes," devices used to hack into the phone system more easily than the children's whistles that the legendary hacker John "Captain Crunch" Draper had previously used. Hacking began as an interest in tinkering for its own sake, and as an obsessive activity for do-ers; occupying a similar space on the cultural margins as custom-car building in previous decades. Captain Crunch had much more interest in playing with the telephone system, and beating the game, than he had in actually getting free long distance phone calls.

Hacking grew from a desire to "open up the box" and see what the insides looked like; to treat an electric system as a toy and play with it. The open source movement had a parallel growth during the same time period, and came from the same roots. Before computers became commoditised one could make little sensible distinction between the users and the producers, and all enthusiasts acted as prosumers. In 1980, for example, Clive Sinclair launched the Sinclair ZX80, one of the first home computers in Europe, as a kit that purchasers assembled and soldered together themselves. This form of delivery naturally led to experimentation and, given the marginal status this acquired, to sharing knowledge. Richard Stallman organised the Free Software Movement in 1983, and outside of this many amateur programmers shared programs and games written in Basic on bulletin boards, in large part because it proved much simpler to share the source code than to distribute applications.

Aspects of this practice have gradually moved into the mainstream at the same time as others try to establish digital monopolies. The term "hacker" has by now become attached to a wide range of activities and techniques far removed from its original usage. Many start-up companies, for example, now employ *growth hackers*, who differ (in their view) from marketers because they defined themselves as "a person whose true north is growth... Every

decision that a growth hacker makes is informed by growth. Every strategy, every tactic, and every initiative, is attempted in the hopes of growing. Growth is the sun that a growth hacker revolves around. Of course, traditional marketers care about growth too, but not to the same extent. Remember, the power of a growth hacker is in their obsessive focus on a singular goal. By ignoring almost everything, they can achieve the one task that matters most early on." (Patel & Taylor, 2013, p8) From this perspective hacking has become a general term to describe approaches and techniques formed from long exposure to the kind of digital environments that Beck and Wade described. The wider effects of the open source movement, such as the growth of the Creative Commons movement, have a similar background, and have arisen for similar reasons.

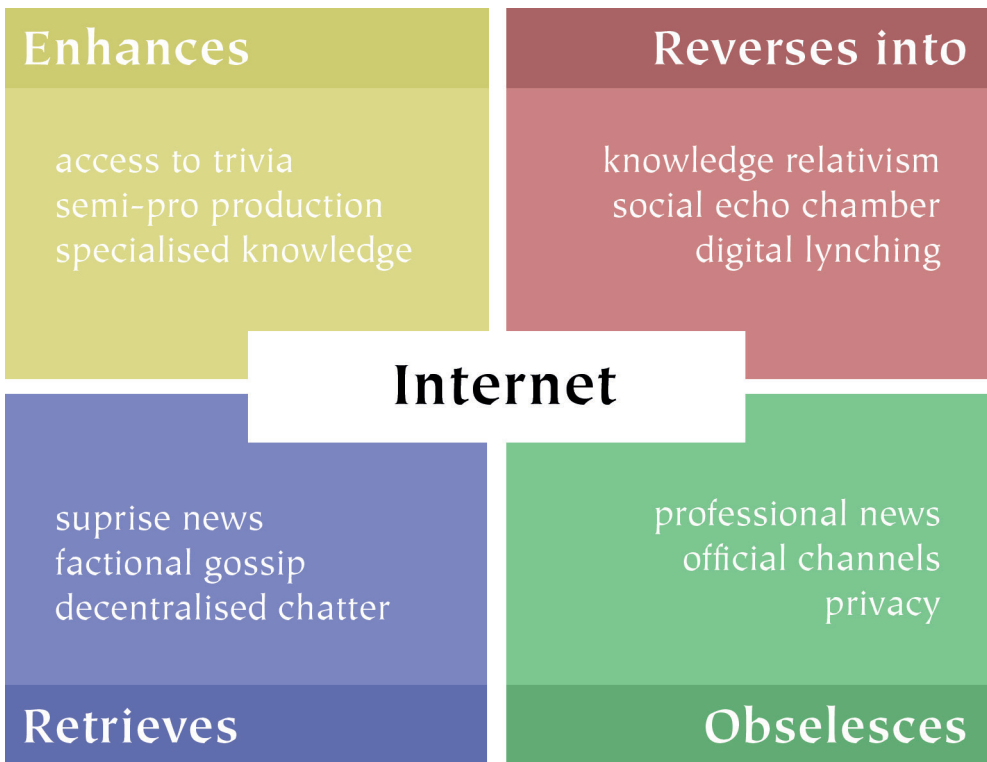
They represent a paradox at the heart of the emerging digital world: the conflict between radical monopolies and the commons.

21.5. *Radical Monopolies*

In the beginning each innovation, each new medium or tool, has an unclear future. It has more than one potential use, and it can affect the current sensorium in more than one way. At the beginning of every adoption process, then, we can find a window of opportunity where the normal or customary use of a new tool lies undefined. Thomas Edison demonstrated the phonograph in 1877, at the offices of the Scientific American, but the machine that he demonstrated could both record and play back sound. It functioned, in effect, as a dictation machine. He never envisaged this leading to the mass production of vinyl albums and compact discs. Edison did not intend to invent the recorded music industry, any more than Marconi intended to invent the disc jockey. These phenomena arose because of the particular ways in which producers and consumers adopted these technologies and thus the effects they had on the human sensorium. The phonograph and radio both ended up enabling performance-in-sound at a distance, both in time and space. They both ended up establishing a plethora of new professions, each concerned in one way or another with widening or strengthening the gap between producers and consumers.

The entertainment and information industries sought to establish radical monopolies to entrench their position, and "radical monopoly imposes compulsory consumption and thereby restricts personal autonomy. It constitutes a special kind of social control because it is enforced by the imposed consumption of a standard product that only large institutions can provide" (Illich, 1973, p67). However, the ability of the cultural industries to enforce these monopolies has diminished considerably since the advent of digital technology, as we can see from the moral panics over "piracy" and the draconian attempts to extend the laws of copyright well beyond their original intended purpose.

150 years of industrialised capitalism suited the spread of radical monopolies very well. The system depended upon scarcity, and the development of more and more complex machinery generated several new kinds of scarcity. The expense of buying machinery, the technical knowledge needed to operate and maintain it, the space it needed, all served to raise the cost of entry into the marketplace. Efficiencies of scale served to consolidate ownership into fewer and fewer hands. Television and radio's use of bandwidth served to



limit the amount of broadcasters while freeing them to send one-way transmissions to more and more consumers. Corporations have now begun to attempt to extend these familiar tactics to the internet and to other aspects of the emergent digital world. We should note that nothing inherent in the invention of the world wide web leads us inexorably towards the dominance of Facebook, any more than anything inherent in Edison's demonstration of the phonograph led to the dominance of global music labels like UMG.

The founders of Facebook appear to wish to establish a radical monopoly: their concerted attempts to develop Facebook as a platform makes that clear. As early as 2007, Katie Germinder, the director of user experience at Facebook, wrote "With this evolution of Facebook Platform, we've made it so that any developer can build the same applications that we can. And by that, we mean that they can integrate their application into Facebook--into the social graph." (Facebook, 2007, online reference) In other words, they have long planned to run an intermediary service in which other developers run profitable services on top of theirs. The business value of this approach lies in persuading other developers to see Facebook as a utility, like the electricity grid, and compete among themselves to provide services on top of the grid, all of which provide data that Facebook can access, analyse and sell on. If they succeed they will become what people mean when they talk about social networking, just as the highway system has become what people mean when they talk about travelling. However, Facebook will only have succeeded in establishing this kind of radical monopoly on the internet if and when people have come to see what happens on there as synonymous with online social networking, and have thus become unable to imagine any

other way that online social networking might happen. We may still plausibly regard this as less than inevitable.

Facebook, indeed, may face a harder struggle to establish such a radical monopoly than previous cultural industries such as the record industry did, because they might have much more trouble generating scarcity than record labels or publishers did. They might also have more trouble generating consensus than they would have done in the old mechanical age. People accepted scarcity as natural fifty years ago, in the sense that it seemed self-evident that if I lent you a book then I no longer had possession of the book. I could not avail myself of its contents until you returned it. The frantic efforts of the “content industries” to prevent “piracy” demonstrate that this no longer holds true. I can make a copy of my eBook and give it to you and, if we so desire, we can both read it simultaneously. In this scenario I have replicated my book because I retain my copy while you gain a newly-created copy; and you will not return your copy to me, but throw it away when you have finished with it.

Whenever a corporation attempts to insert scarcity into this scenario they do so by artificial means. They deliberately add additional, and unnecessary, components to the eBook in order to make it difficult for me to copy or for you to read once copied. This, of course, usually backfires because the so-called copy-protection serves to set up exactly the kind of intellectual puzzle that fascinated Captain Crunch and Steve Jobs thirty to forty years ago; and so we can expect that people just like them will try to open the toy to see how it works, even if they have no real interest in the book itself.

The consensus that Facebook, and similar corporations, will need to establish radical monopolies in the digital age, may elude them, then, because attempts to create artificial scarcity by crippling digital goods can easily bring forth the hacker ethic; because that can remind us that we might well find open source equivalents; and because of these two factors we might tend to see digital goods more easily as part of the Commons.

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21.6. *The Commons*

The idea of the Commons pre-dates the emergent digital world by at least three hundred and fifty years. During the reign of Oliver Cromwell, after the English Civil War, Gerrard Winstanley led the True Levellers opposing the unprecedented attempts to create privately owned 'enclosures', by fencing in what large areas that people had previously known as common land. In April 1649 he published *The True Leveller's Standard Advanced*, in which he declared

And hereupon, The Earth (which was made to be a Common Treasury of relief for all, both Beasts and Men) was hedged in to In-closures by the teachers and rulers, and the others were made Servants and Slaves: And that Earth that is within this Creation made a Common Store-house for all, is bought and sold, and kept in the hands of a few, whereby the great Creator is mightily dishonoured, as if he were a respecter of persons, delighting in the comfortable Livelihoods of some, and rejoicing in the miserable povertie and straits of others. From the beginning it was not so.

(Hill 1973, p78)

Winstanley did not write this as a philosophical treatise. Rather he wrote it from

bitter experience, as part of an ongoing struggle to prevent the earth itself becoming private property.

On Sunday, April 1st, 1649, a plot of "wasteland" near Walton-on-Thames, known as St. George's Hill, was the site of one of England's earliest communist uprisings. Led by discharged New Model Army soldier William Everard, and former cloth-merchant Gerrard Winstanley, a dozen landless men and their families invoked their God given right to till the earth, and began digging, and fertilizing the common. In an age when land and its products were the primary form of wealth, the actions of these "Diggers," and others like them throughout England posed a serious challenge to the ruling elites of their day. If the poor began taking the matter of famine into their own hands, establishing their own communities, free of the social, religious, economic, and legal constraints that kept the aristocracy in power, the aristocracy's demise would surely be imminent.

(Spritzler, 2003, p5)

The Levellers based their definition of the commons on their belief that large "portions of England were uncultivated wastes and commons which had been enclosed or claimed by gentry or large landowners. Diggers proposed to dig up, manure, and sow corn upon the common waste ground". (Stratman, 1991, p238) For religious as well as political reasons, they refused to believe that anyone could claim to own the earth or what grew on it.

This definition lies at the root of all discussions of the commons since. In *Capitalism 3.0*, Peter Barnes defined the Commons as "the gifts of nature and society we inherit and create together... Each of us is the joint recipient of a vast inheritance. This shared inheritance includes air and water, habitats and ecosystems, languages and cultures, science and technologies, social and political systems, and quite a bit more." He added that "Common wealth is like the dark matter of the economic universe--it's everywhere, but we don't see it. One reason we don't see it is that much of it is, literally, invisible. Who can spot the air, an aquifer, or the social trust that underlies financial markets? The more relevant reason is our own blindness" (Barnes, 2006, p66-67). His definition begins at the same place but notably broadens the definition to include matters of culture. This broadening, and the explicit inclusion of "languages and cultures, science and technologies, social and political systems" clearly places memes and wider meme-based systems within the commons.

This has profound importance. Small groups have fought the battle between radical monopoly - the black iron prison - and the commons for at least three hundred and fifty years, since the radical monopoly of the church over the lives of Europeans began to crack when the printing press and other mechanical technologies made new choices and social arrangements possible. During the mechanical age the advantage lay with the centralising and monopolising tendencies. During the last century we learned that everything we see, think and feel arises from, and subsequently forms part of a never-ending story that we tell and retell ourselves and each other. We do this through memes, which have the same importance to us, as human beings, as air and water. Memes play a vital role in binding us together into society, and society makes us human.

In the emergent digital age, where cultural artefacts have no in-built scarcity and ideas can travel the globe in seconds, the balance may shift. More accurately: we may have the capacity to shift it. To do this we will have to think about the tools we need, and draw up blueprints to guide us in building them.

In the past people learned for several reasons. The wealthy learned for religious reasons, to celebrate creation and better admire the work of the creator; for exploratory reasons, to discover more for the pleasure of knowing; and for strategic reasons, to advantage themselves. The poorer learned a trade - they became apprenticed to a baker or a blacksmith - in order to earn a living. They did this knowing that once they had mastered their craft, they would have a set of skills that would last them their whole life, and that they would have, in McLuhan's terms, a role that would serve to place them within their community. As industrialisation took hold, people continued to learn trades - they trained as plumbers and later as electricians - although they now came to recognise that their skills would need adding to, or upgrading, at several points in their working lives as the technology with which they worked evolved. They also began to work in jobs, rather than roles, and to live lives that increasingly split into separate work and leisure times in which they behaved differently and mingled with different groups.

22.1. Necessary Learning

Today people continue to learn for all of these reasons, and many people, at adult education classes, continue even when they no longer *have to* learn. Allen Tough, like many others, believed that the question "of why men and women learn is extremely important, for it is hard to develop better help for adult learners without understanding their reasons for learning. The question has been discussed by many writers, going as far back as Socrates"

(Tough, 1971, p45). Tough compiled a list of these reasons as they related to voluntary adult learners (Tough, 1971, pp59-61):

1. Satisfying curiosity, puzzlement, or a question
2. Enjoyment from the content itself
3. Enjoyment from practising the skill
4. The activity of learning
5. Learning successfully
6. Completing unfinished learning
7. Aspects unrelated to learning

In the twenty first century we have a new and compelling reason to learn that we can add to this list. We have clear evidence that the digital age will depend, for the foreseeable future, upon incessant change and innovation. Nothing around us has a final form and the ground shifts constantly beneath our feet. In the last twenty years, as noted earlier, the telephone system has changed completely. Line phones have almost disappeared. Not only have phones changed as physical objects, but their uses, and the social conventions surrounding those uses, have changed too; as have the objects that used to accompany phones. Telephone directories, for example, no longer serve any obvious function, even when you can still find them. They contain nothing that you cannot find through the search function *on the phone itself*. Moreover, not only have people of all ages had to learn how to use several successive generations of mobile phones, each different and more powerful than the one before, but they have also had to negotiate new conventions for using them. Changing technology has altered social expectations and rituals. Thirty years ago, for example, only businesses had answering machines. If you had telephoned me in 1984 at a time when I had gone shopping then I would not have received your call and, moreover, I would not know that you had called. Today you almost certainly expect me to have my phone with me, and if I don't answer it you will send me a text message. If I don't answer that then you may start drawing conclusions about my reliability, or our relationship.

The telephone provides one easily recognised example of regular disruptive change. So too do computer operating systems, which receive upgrades that leave many people feeling confused and upset that they need to learn to use their computer all over again (Keizer, 2009). We can also find other less immediately obvious examples. Technical standards change with increasing rapidity, rendering digital apparatus and digital data obsolete. Fifteen years ago I brought all my computer data with me from England to Finland on Zip disks. I still have the disks, and the disk drive, but no obvious way to connect them to any modern computer. If I do manage to connect them then I strongly suspect that much of the more valuable data would require me to locate obsolete applications and a computer system able to run them. We may also note that Apple's introduction of the iPad in April 2010 began a move to modern tablets, and the rapid adoption of these has changed the way people use laptop and desktop computers, and phones; as well as changing the ways that increasing numbers of people obtain news and read newspapers, magazine, books, comics and working papers, as well as watching movies and television programmes.

22.2. *Taught by Tools*

Unless we assume that this kind of relentless change will suddenly cease (and I can find no believable evidence that suggests this will happen) then we must prepare ourselves for a world in which our knowledge and skills regularly pass their use-by date. In this world we will need, above all, to learn *how to learn*. We will need to learn strategies for generalising our knowledge and techniques for mapping our existing knowledge onto new domains. This differs from what Allen Tough terms "the activity of learning". He uses this term to describe the process of "pleasure, self-esteem, and impressing others [that] may arise from the activity of learning - from the mere fact that the person is, at that particular time, engaged in learning rather than in some other activity" (Tough, 1971, p60). Learning to learn differs from this in that it involves acquiring a set of meta-strategies to inhibit frustration and increase the desire to explore.

We live now in a world of ambient learning in which, increasingly, the tools we use teach us how to learn them and we, in turn, pass this knowledge on. Digital devices have built-in help screens and software regularly offers us "tool tips". In this way, objects previously at-hand in the background now move into the foreground at times of their own choosing to inform and teach us. This now forms an increasing part of the ground over which we move; and the act of learning how to learn becomes a necessary response to an environment that will not stop teaching us, and that requires that we absorb this teaching in order to continue to function. We have to keep moving in order to stand still.

In this way learning has begun to become decoupled from education in the lives of increasing numbers of people. Not only do people need to learn continually, with no end in sight, but they need to do this in a completely idiosyncratic manner. Nobody attends a formal class on how to live in a twenty-first century house, or how to shop today. Yet every new washing machine has new functions, and supermarkets have begun introducing self-service checkouts that require the shopper to scan his own goods. Importantly every person comes across an unpredictable range of these services in an unpredictable order, and so no formal body could develop a curriculum that depends on devising pre-ordained sequences of teaching. In this situation people need the ability to generalise from previous knowledge in a way that proves useful to them. To do this they need, firstly, to know how to approach each new problem; in other words, they need to learn how to learn. Secondly, they need to remain in the learning pool, because the ability to generalise depends in large part on the ability to recognise similarities; and this, in turn, depends upon a degree of familiarity with what we approach. People who upgrade their phones every year receive incremental upgrades, where the familiar features reassuringly outnumber the new, whereas people who purchase a new phone for the first time in a decade tend to receive an unwelcome shock.

I should note in passing that I do not intend this to stand as an argument for constant or increased consumption, because the important issue does not revolve around *ownership* of a contemporary phone, so much as *access* to contemporary knowledge about the state of development of phones. If, at the moment, we find that the only way we can keep abreast of contemporary knowledge necessarily involves continuous consumption, then we can

treat this as a sign of a radical monopoly that acts to keep us locked into the role of consumer. A radical monopoly of this kind need not take the form of a traditional conspiracy and it does not need to have conscious conspirators. It evolves under its own imperatives or, rather, once we agree to re-define activities as services we establish a logical chain - a cycle of memetic replication - that favours turning neighbouring activities into services, and propagates the view that we should regard such services as natural and accept our role as consumers of these services as a sign of progress.

As noted earlier, digital tools increasingly have the ability to act as teachers.

Whereas industrial machinery, from washing machines to cars, used to come with separate manuals, digital tools tend to come with 'wizards' to get the user through the set-up process; pop-up dialog boxes to introduce users to new features and explain, in context, how to access and use them; and onscreen help that users can access from *within the tool itself*. Hardware manufacturers, such as Apple, assist this process by issuing strict guidelines to software developers that aim to ensure that the end user can generalise their knowledge from one app to another, by preventing the development of idiosyncratic or indecipherable interfaces. This process constitutes a powerful form of gamification (McGonigal, 2011), which mimics the mechanisms underlying the demo levels in computer games. Designers developed these to replace instruction books, and to enable the gamer to begin playing immediately. By incorporating the instructions into the first level of the game, the user starts playing and learns at their own pace. The demo level counts as part of the game yet introduces all the elements the player will need to understand one by one in a logical sequence that feels rewarding. The player wakes up in an office, for example, learns how to open the door, and then learns how to drive the car she finds outside in the empty car-park, before learning how to search for objects by finding the keys to unlock the car-park gate, and then learning to use the navigation system in the car which in turn triggers a simple mission to drive to another location. At each stage the player feels occupied in a meaningful task, and by the end of the level she has learned everything she needs to play the game. In the introductory level no enemies or obstacles appear to hinder her progress. They will appear once the game begins properly with level two.

For most complex computer games this kind of learning-by-doing has replaced the previous instruction manuals which, where they still exist, have become reference books. A similar gamification process has occurred with digital devices. Here the user also begins using a new tool immediately, and learns the complexity of the device step by step through a stage-managed series of help screens or animations that she can ignore until needed. Objects increasingly send out signals to indicate their current state. I can remember my surprise, for example, when I first sat in a car that told me, in a loud voice, the distance between my car and the car behind when I reversed to park. "Three metres, two metres, one metre, Warning!" In a world that has begun to behave in this way, people increasingly learn how to operate their tools in small, discrete lessons that they receive from their environment itself, and this I refer to as ambient learning. I use this term to mean something similar to Brian Eno's definition of ambient music: "Ambient Music must be able to accommodate many levels of listening attention without enforcing one in particular; it must be as ignorable as it is interesting" (Eno, 1978). Ambient learning, then, lies embedded unobtrusively within some-

body's environment; invites but does not insist upon attention; and remains constantly available in the background until called forward by someone wishing to avail themselves of what it offers.

Ambient learning does not require teachers, although it does require designers. The designers cannot know anything about the learners who they will guide. They can have no knowledge of the users' previous learning experience, or anything about the precise context within which the learning will take place. They must assume that the learner has a willingness to learn; that the user probably seeks a specific answer to a specific question, rather than wanting to "learn more" about their device in a general way. They must assume, like games designers, that the user will get bored or confused if they feel overwhelmed with information. This kind of learning does not replace conventional learning, whether that takes place through an institution or informally, because it does not deal in generalities. Ambient learning will not teach you electrical engineering; rather your new Smart TV will show you how best to use it, to the extent that you wish it to. Ambient learning takes place when people use tools that perform two tasks: their primary task (to receive and display electronic signals, in the case of a smart TV) and a secondary task of feeding back information to the user about how they should use the tool, *as they use it*. When people use enough of these tools, and when these tools develop a third function of communicating information about the user to each other, then our lived-worlds will become active learning networks.

22.3 An Ambient Learning Triad

We can make a strong case for three forms of ambient learning. In the first type, described above, we appear to learn *from* the environment, although in reality what we can learn arises through human design and programming. In the second type we learn with the environment, through sharing our opinions and knowledge through services such as Foursquare. Here we find ourselves involved in peer-to-peer learning networks that can never give users more or better information than other users have previously inputted. This kind of user-generated content makes each of us a part of the other users' environment. I figure in their lives not as a friend but rather as part of the ground from which they draw their decisions. My opinion of a coffee shop or a restaurant gets aggregated with other opinions to provide a groundswell of judgement that may lead somebody I may never know to choose one venue over another. We might regard this process as establishing a particular and peculiar kind of network; recognising that, as the novelist Kurt Vonnegut pointed out before the world wide web existed, "humanity is organised into teams, teams that do God's will without ever discovering what they are doing. Such a team is called a karass by Bokonon" (Vonnegut, 1963, p2), who, according to Vonnegut, created a religion founded entirely upon "harmless untruths".

The third form of ambient learning involves learning *about* the environment from our tools, and this has already had largely unnoticed social consequences. My younger daughter once indicated to me that she had little understanding of the concept of "getting lost", at least in the way that I understand it. She regarded the idea as something she read about in old stories: to her getting lost happened to people who walked through dark forests in fairy tales or

ran from monsters in adventure stories. She had had a phone ever since she had travelled anywhere on her own, and her phone had had mapping software, and therefore in her experience you answered the question “where am I?” by checking your phone and then possibly googling. I realised that her world differed greatly from mine because she carried with her, and took for granted, tools that always knew her position and could always tell her about her environment

Taken together, this triad constitutes a new active environment that serves to create another triad by allowing us to expand the notion of figure and ground to include the relationship of figure, ground and environment, where we define environment as the totality of perception within which both figure and ground shift and dance.

22.4. Privatising Language

We should not regard either tools or learning networks as value-free or value-neutral. Every tool and network embodies the conscious and unconscious biases of its creators. As we saw earlier, users' experiences in Second Life take the forms they do as a result of the designers' original choices. Players there would act differently if their avatar needed food or sleep, or could receive, and suffer the results of, injuries or illnesses. Players would behave differently if they had to traverse distances, and if water required skills or equipment to cross. As we move into a gamified digital age, more of the "real" world appears to us as the result of human design decisions, and thus more and more of the world arrives before us pre-loaded with unstated game-like values that lay below the surface.

We can observe the ways values get embedded in this way by looking at a large-scale study the EU commissioned in 2004, entitled *Ambient, multimodal and context-sensitive lifelong learning* (eTEN 510749). The group published their final report, *Ambient Learning*, in January 2006. The authors began by declaring that, in a society

where information is becoming a strategic raw material and knowledge a fundamental production factor, how this resource is used is critical for the performance potential of companies and of employees. Due to a falling “half-life” for knowledge, how up-to-date information is rapidly becoming a crucial factor in competition.

The new information and communication media provide the necessary technology to make knowledge available world-wide, but at the same time create an unprecedented abundance of data. The increasingly extensive range of digital content often leads to an excessive amount of information. To respond to individual needs, it is becoming increasingly important to select information and to systematise knowledge. In times of increasing globalisation and networking, flexible access to information must be guaranteed anywhere and at any time.

The manner in which those searching for information have selected the offerings relevant to them up until now is, however, still a long way from being able to satisfy a rising number of requirements. If you think about how little current content offers are tailored to specific user context, today's approaches will seem primitive in a few years' time. The gradual development of context-sensitive technologies is, at

least in the medium-term, the foundation for providing information which is tailored to users' requirements.

(Kölme1 et al, 2006, p7)

In a related presentation the authors described ambient learning as "a highly innovative Integrated Knowledge and Learning Management System, which merges the e-Learning provision with context-based Knowledge Management" (Ambient Learning Positioning, slide 6). For this group, then, the changing environment presents a new business opportunity, and, reading the report, it becomes clear that they regard this opportunity as one for producers to seize. We might note that this opportunity consists almost entirely of nouns, as becomes clear from the description of "the architecture of the Ambient Learning service" that they propose: This architecture, they write, will

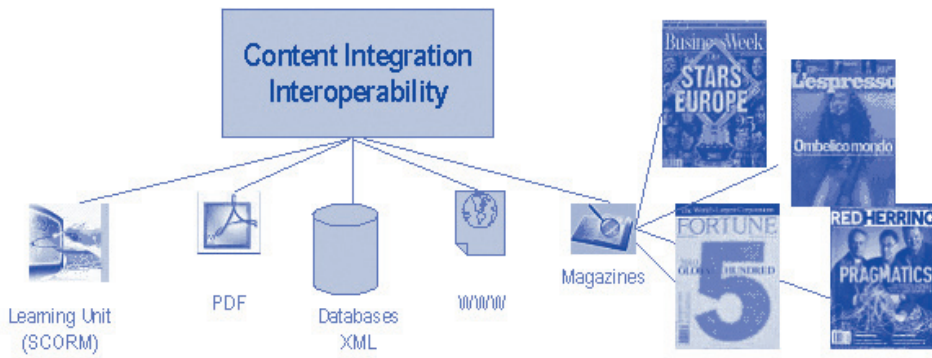
enable further training which is location independent and related to the respective user context and to guarantee the supply of high-quality knowledge units, the Ambient Learning service integrates the features of context sensitivity and content integration and combines them with a multi-model broadband access which enables users to access a number of terminals in the medium-term.

(Kölme1 et al, 2006, p12)

We have already seen what this kind of reliance on nouns means in practice: it signals a (conscious or unconscious) intention to eviscerate human agency, and human relationships, from a discussion: to replace a triadic relationship with a binary division. In this case the language itself seeks to privatise the process of communication and to enforce linguistically the division between producer and consumer. It appears to indicate that the authors clearly want to carry over an old industrial monopoly into the new digital arrangements by establishing the web as a broadcast medium. Their "architecture" intends to enable trained professionals to distribute their content in ways that will allow users to consume "context-sensitive paid content" (p94) at any time in any place. This diagram from the accompanying website makes this even clearer.

Here we can see that the content in this system emanates from international publishers and institutions, and that the purpose of this system revolves around allowing them to repurpose and repackage their copyrighted material in order to sell it on the new gadgets that consumers have already purchased. The user features in this imagined system only as a passive consumer, and not even as the prosumer that Toffler predicted. This approach sees the emergent digital world as something to mould into the old, familiar forms. It aims to extend the radical monopoly of the industrial broadcast media to the digital age.

Whatever one thinks about the intentions of this project its assumptions seem almost quaintly old-fashioned. They fly in the face of most of the practical developments on the web in the last decade including, somewhat ironically given what I explained earlier, the growth of Facebook. Most development has occurred in the areas of distributed and user-generated content. Much of this has, in effect, advocated for the evolution of prosumers, whether as bloggers, photographers or curators, with the result that even "old media"



From an EU report: content integration operability

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websites have rethought their relationship with their audience, increased their comments pages, and begun to use the comments posted as raw material from which to build new articles.

Prosumers have also begun to feature in the development cycle of a growing amount of software as developers have begun to use web-based forums to establish positive feedback loops with their most engaged customers. Get-Satisfaction.com have even formalised this process by establishing a service in which users of a product can establish a forum and invite other users, and company representatives to join in. In this system customers provide information that directly feeds into the development of the product, and the developer becomes a consumer of the directly expressed wishes and opinions of her customers as a well as producer of the actual product. In a producer-based system the users teach the developer who then produces a product that, in addition to its primary function, teaches the users how to use it, in a cycle that potentially never ends. The constant availability of user feedback, when developed to allow innovative suggestions from users, forms a background of ambient learning for the developer.

Ambient learning, in the sense that the EU apparently uses it, creates or perpetuates radical monopoly. Ambient learning, in the sense that I mean the term, moves towards recognising a distributed commons in information and learning.

22.5. *Ambience and Memes*

The examples above make it clear that while people continue to make choices for us alternative systems have evolved and already work effec-

tively; and that we therefore need to choose which system we want to continue. The digital age has not yet fully formed or fully taken shape. As I noted above, we still have a window of opportunity before "everybody knows" how things work, and new radical monopolies sink below the threshold of attention, turn invisible, and become the new common sense.

We began this chapter by looking at Allen Tough's list of reasons to learn. We now need to add one final point to this: one that arises from our recognition that "we are stories all the way down". If we accept that memes constitute the difference between human-beings-in-society and human-like animals, and that we receive and transmit these memes, then we have a clear choice. We can choose to learn how we can rise to the challenge of co-authorship; we can decide to let things take their course in the belief that training will do no good; or we can accept that others will author the memes that we will consume. Only the first two choices offer us a chance to help create the life-world which we experience, and if we therefore rule out the third choice as defeatist, our choice becomes much simpler. A decision to "let things take their course" misses out on a voyage of discovery in favour of learning after the event about the voyages of others. The only positive, life-loving position we can adopt involves learning how, and to what extent, we can co-author our own selves.

If we consist entirely of stories then we surely need to learn how to read, critique, edit and write them. In a media landscape that favours ambient learning, we need to begin to act as prosumers in the business of authoring both ourselves and the life-world we inhabit.

CHAPTER 23: TOOLS FOR SELF AUTHORSHIP

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Before we can begin to identify tools to assist us in the process of co-authoring our lives, we will need to identify both what we mean by co-authorship in this context, and what techniques that we might usefully employ in the service of co-authorship. However, before we do that we will need to consider briefly two final areas: positive psychology and ludic learning.

23.1. Creating Tools

In part two we considered a number of approaches to the question of self, including therapeutic approaches from the work of Freud to Transactional Analysis and Gestalt Therapy. Despite their major differences, these all have a single end-point in common. They assume (and in some cases explicitly state) that, at the end of therapy, a patient becomes whole, or complete, or integrated. They share a similar teleological project with Karl Marx, in that they believe that we can reach an end-point through a process of removing layers of *bad stuff*, and that the removal of those layers of *bad stuff* will by definition constitute the end-point. In this view, the end-point has very few qualities of its own: rather it reveals the "natural" person (or in Marx's case the "natural" human society) that finally stands naked with its sins removed. Eric Berne, in a half-page final chapter titled *After Games, What?*, describes his particular version of this end-point:

For certain fortunate people there is something which transcends all classifications of behaviour, and that is awareness; something which arises above the programming of the past, and that is spontaneity; and

something that is more rewarding than games, and that is intimacy.

(Berne, 1964, p162)

Once the games have stopped, and the neuroses have healed, the "authentic" person stands there revealed. This, as said earlier in a discussion of Freud's outlook, implies a profoundly pessimistic variation of a medieval religious outlook that ultimately focuses almost exclusively on a negative view of life in which we journey from absolute freezing in an attempt to scale the heights to zero, with no belief that we will find anything above that. These therapies all offer ways to diagnose many different types of negative feelings and behaviours, of various degrees of severity, but only one kind of positive position; one that apparently exists so rarely or so fleetingly that we can describe it only in the vaguest of terms. It seems to involve awareness, spontaneity and intimacy, but it doesn't get any better, or any more specific, than that.

Positive psychology proceeds from a different starting point. It assumes that we ought to find as many positive states as negative states, and that "well" people could still improve their lives; and make a serious attempt to climb beyond zero towards a hypothetical boiling point. In researching this, Martin Seligman has stated his desire to "reclaim the study of character and virtue as legitimate topics of psychological inquiry and informed societal discourse" (Seligman & Peterson, 2004, p4). Seligman has compiled a set of twenty four psychological strengths, divided into six "virtue clusters":

1. Wisdom and knowledge
2. Courage
3. Humanity and love
4. Justice
5. Temperance
6. Transcendence

He has used these as the basis of programmes of practical exercises (Seligman, 2003), as well as surveys and self-administered questionnaires (Authentic Happiness, web reference). This work provides an important lesson that we need to apply to our search for tools. We should spend as much, if not more, time trying to determine how to improve our strengths as we do trying to overcome our weaknesses. Good health has as many variations and degrees of resilience and severity as bad health. This suggests that we will need to identify methods for developing strengths such as relaxation and focusing exercises, possibly using emotional workouts as well as meditative techniques.

In addition to positive psychology we also need to take into consideration the area of ludic learning. Johan Huizinga has asserted that play "is older than culture, for culture, however inadequately defined, always presupposes human society, and animals have not waited for man to teach them their playing" (Huizinga, 1949, p1). He further argued that

A play-community generally tends to become permanent even after the game is over. Of course, not every game of marbles or every bridge-party leads to the founding of a club. But the feeling of being "apart together" in an exceptional situation, of sharing something important,

of mutually withdrawing from the rest of the world and rejecting the usual norms, retains its magic beyond the duration of the individual game. The club pertains to play as the hat to the head. It would be rash to explain all the associations which the anthropologist calls "phratry" -e.g. clans, brotherhoods, etc.-simply as play-communities; nevertheless it has been shown again and again how difficult it is to draw the line between, on the one hand, permanent social groupings particularly in archaic cultures with their extremely important, solemn, indeed sacred customs-and the sphere of play on the other.

(Huizinga, 1949, p12)

From this perspective we can understand that the adult learning communities that Allen Tough described operated as forms of play for at least some of the voluntary participants. Some participants may have had immediate benefits in mind, at work or at home, and for them learning might have seemed a "serious" activity. Those who learned for other reasons, though, might well have felt the time they spent learning as a form of play, just as Captain Crunch and other hackers engaged in their puzzle-solving playfully. In the past decade a growing number of people have advanced the idea of *gamification*, of harnessing individuals' desire to play for larger group projects (cf McGonigal, 2011). During the same period a parallel movement has advocated the use of computerised *brain-training* exercises, to increase brain fitness. The website Lumosity.com, which I discuss in more detail later, funds research into brain training while offering a range of exercises by subscription on the web and on mobile devices.

Taken together these form a backdrop for the development of tools for memetic co-authorship, a ground upon which such tools can develop. However, viewed together, they all seem to have a bias towards the universal. They all assume that your mind, to all intents and purposes, operates in the same way as mine. They all assume that what will help me will, by definition, help you. Lumosity.com, for example, offers approximately forty brain-training exercises and, with only a slight variation based upon self-selected goals, offers all of them to everyone. This might work with our fast System 1 minds, our intuitive pre-conscious skills and abilities, because evidence suggests that people may inherit these genetically and thus may not transmit or receive them memetically. However we may have less reason to trust global solutions for those skills, points of view, biases and abilities that we do receive and transmit memetically.

If these form a backdrop, what stands in front of them? What do we really mean by co-authorship? I quoted the American author and farmer Wendell Berry earlier as pointing to something that Mary Catherine Bateson wrote to the effect that "it has seemed to me that the idea of an individual, the idea that there is someone to be known, separate from the relationships, is simply an error." (Berry, 202, p138) and I have demonstrated why we can agree with her. These relationships remain in us as stored memories, some or all of which take the form of memes. "Until recently it was thought that newly learned material is transformed into stable, solid chunks of long-term memory through a one-time process of protein generation known as consolidation. This is no longer believed to be the case. Instead long-term memories become chemically unstable every time they are retrieved. In this fragile state long-term memories can easily be altered or disrupted (Aunger, 2002,

p204)". This forms the basis of all techniques of self-authorship, ancient and modern. By reflecting we bring certain stories from the past, stored as long-term memories, to the foreground where, for a short while, they once again become plastic; and by redefining our relationship with them before they become reconsolidated we can change their nature and their relative power. By doing this consistently we can preference some stories, enhancing their power within the coalitions of memes that occupy our brains, and weaken others, lessening their powers within their coalitions. In this way we can work in a triadic relationship with other agents and the culture environment - the media landscape - that we share with them to co-author ourselves.

These techniques for self-authorship do not necessarily lend themselves to universal production as apps or generalised instructions. I had to confront this issue head-on when several students at Arcada asked: how can we make a universal immersive world for people to meditate in when different people have different imaginary worlds, and different scenarios (outer space, pirate's cove, etc.) resonate differently for different people? I had asked them to carry out some preliminary work on one of the ideas described in the blueprints below. Specifically I had asked them to construct a test world in the form of three interconnected islands, each representing the parent, adult and child states in Transactional Analysis. They had begun by trying to identify symbolic representations of child states. They made informal surveys to gather data from other students about how they might represent a "world of the child" in 3D. The responses they got, and their report on this, caused us to understand that we had created the problem ourselves by misunderstanding the original goal. I and they had assumed, without ever thinking explicitly about it, that we would end up making a product that we would then try to distribute. We would end up with something like a downloadable package to use on a computer, or an app to use on a tablet; and this had led me to pose the problem as though the answer should take the form of a universal solution. I had accepted and internalised a definition of distribution that, if challenged, I would claim not to support or believe in. I had absorbed an industrialised definition of distribution through which we would create something and other people, including millions unknown to us, would buy it or accept it for free, paying us in money or prestige.

I decided that we should instead start with ourselves. We should ask ourselves how we would personally depict a child-world for our own use, and then we should make it, and experiment with it *ourselves* until we had decided whether it has proved useful or not *to us*. We should not attempt to build a universal tool, for that attempt merely echoes the procedures of the industrial age. We should test a tool meant solely for ourselves and then, if we found the tool useful, we should offer a toolkit to enable others to make tools of their own. We should not aim to monetarise our idea and build a Facebook or an Amazon; rather we should hold close to the idea of sufficiency. We have identified our problem, and we will attempt to solve it. If we manage this, then we will explain what we have done, how and why. We will use an open source model in which we take responsibility for beginning the process and persuading people of the benefits of the idea, and then allow whoever wants to join in for form a playful club around the idea.

The very nature of memes, and the extended phenotypes they create, ensures that we all have many things in common, and that we share many beliefs, ideas,

information and points of view. The specific ways in which we manifest these, though, may incorporate idiosyncrasies of interpretation and metaphor, of maps and signs. Building a product will not work because we cannot view co-authorship as a market without inverting our intentions in our search for it. As Osho put it, "Things can be copyrighted, thoughts cannot be copyrighted, and certainly meditations cannot be copyrighted. They are not things of the marketplace. Nobody can monopolize anything. But perhaps the West cannot understand the difference between an objective commodity and an inner experience." (Osho, 1988, p239) The argument put forward by Osho takes us back to Illich's point that either people use their tools or their tools use them. What Osho refers to here as "the marketplace" Illich labels "radical monopoly". For both of them our relationship to objective commodities help define the limits of our inner experience and, from this perspective, any idea of a global panacea for self authorship stands revealed as a contradiction in terms. We need freely available, and freely distributed, tools that operate at a human scale.

Indeed, my original mis-thinking itself suggests why we will benefit from tools for autonomous community and authentic self-authorship.

23.2. *Others Stood Here First*

I do not intend any of what I have written to imply that I imagine or believe that we have somehow invented the idea of developing mental tools. Tools for assisting the process of learning, and for improving consciousness, have existed for two thousand years or more, and when thinking about potential future tools we can learn much from this history. Below, I provide thumbnail sketches of some of those who stood on this ground first.

Palace of Memory

The Ancient Greeks and Romans developed the "method of loci", more usually known as the palace of memory. This allegedly originated in approximately 500BC

with a lucky escape from a collapsing banquet hall by the Ancient Greek poet Simonides, who realised that by visualizing the room where the accident happened, he could perfectly recall the names of all his squashed fellow revellers. He later found a less morbid use for this discovery, by associating things he wanted to remember with walks through buildings he knew well.

Nowadays, this technique is used by "mental athletes", who compete in memory championships all over the world. They combine imagined strolls through childhood homes or familiar streets with vivid mental images, the cruder and stranger the better, associating them with strings of random words, names and faces, shuffled cards, and binary numbers, to staggering effect. In 2010, Germany's Simon Reinhard memorised 300 words in 15 minutes. That's one word every three seconds.

(Cornish, 2014)

The Greeks also developed memory techniques based on their discovery of the value of mnemonics; techniques which many people still use today. Every good boy deserves favour represents the notes on the lines of the treble

clef, for those people learning to read music; something that I learned at school and later taught my daughter when she started playing the cello. Similar mnemonics exist in many other areas of study, where people need to memorise lists or sets of information from the colours of the rainbow to the correct order of biological classification.

Commonplacing

These techniques act as extensions to the human memory. As tools, they have the ability to fold a large amount of sometimes unrelated information into a much smaller and more manageable space. Commonplacing, and the use of commonplace books, on the other hand, offers a tool for remembering and re-encountering older versions of one's self, with the ability to thereby reflect upon the difference between then and now. "John Locke, Thomas Jefferson, Samuel Coleridge and Jonathan Swift all kept such books, copying down proverbs, poems and other wisdom they encountered while reading. So did many women, often excluded from public discourse at the time." (Burkeman, 2010) Commonplace books were "cobbled together by literate people... [and] served as repositories for whatever someone thought fit to record: medical recipes, jokes, verse, prayers, mathematical tables, aphorisms, and especially passages from letters, poems, or books." (Krystal, 2011, p50)

Once they had finished the last page of their book, many people adopted a policy of reading it through and copying the passages that still resonated with them into a new book, which they then filled with further entries; repeating the process when they finished that book. In this way people used commonplace books as tools for self-reflection. Looking back at things they had deemed important enough to copy several years ago gave them a self-constructed commentary on their past interests and values. The editing process involved in deciding which entries to copy again into the new book gave them a tool for contacting and judging their previous selves (cf Kelly, 2009).

Meditation & Mindfulness

The eastern traditions of meditation have also provided tools for mental or spiritual development, since the Vedic tradition in India began in approximately 1500 BC. Later Chinese and Japanese practices built upon these beginnings.

The word meditation entered the English language in the twelfth century, when it meant "a thinking over". Although that sense still continues (in sentences like "he meditated gloomily on his prospects of winning") we use it more often today in a completely contrary sense: to describe a state in which thinking appears to cease altogether. Alan Watts described both the process and its lasting appeal by saying that we "are sick with fascination for the useful tools of names and numbers, of symbols, signs, conceptions and ideas. Meditation is therefore the art of suspending verbal and symbolic thinking for a time, somewhat as a courteous audience will stop talking when a concert is about to begin".

Advocates say that meditation quietens the mind. Meditators find a place in which the mind becomes so quiet that for some time it appears to disappear altogether. Many make great claims for this, and suggest that we all would benefit from regular contact with the state of no-mind.

Traditionally meditative practices have required many years of devotion, and have often become entwined with an asceticism that positions the contemplative life as a polar opposite of worldly enjoyment, as a religious sacrifice that involves rejection of the social world. However, during the twentieth century psychologists and gurus have both suggested that this constitutes a misunderstanding. While those wishing to achieve no-mind should conceive the process as one of lifelong learning, they should also recognise that they can incorporate it into a full and social life.

(Kelly, 2011, p4)

In the past century many of these reinterpretations have become absorbed into European and American practices, aided by both European interpreters (cf Watts, 1961) and by Indian practitioners (cf Osho, 1979). Today, much adapted, they form the foundation for the teaching and learning of mindfulness.

Mindfulness is a way of directing one's attention that originates in Eastern meditation traditions. When utilizing or adapting mindfulness-based practices in secular contexts, such as education, it is important to remember the origins and treat it respectfully... [The] key features of mindfulness include a focus on the breath, paying attention to the events occurring within one's mind and body, and bearing witness to one's own experience... In essence, the literature reviewed suggests that mindfulness training teaches individuals a different way of being. While engaged in mindfulness practice, individuals pay open-minded and open-hearted attention to thoughts or events as they unfold. Mindfulness involves paying attention to both the thoughts themselves and one's reaction to them. By utilizing a mindfulness-based technique such as a body-scan meditation, individuals have an opportunity to view their reactions simply and nonjudgmentally, like ships passing on a river, rather than truths that need to be accepted and acted upon.

(Remple, 2012, pp203-204)

Jon Kabat-Zinn, Professor of Medicine Emeritus at the Massachusetts Medical School, has popularised mindfulness-based stress reduction (Kabat-Zinn, 2005), which he developed out of his own experiences meditating and practising hatha yoga and zen.

Flotation Tanks

In 1954, while working at the National Institute for Mental Health as a researcher, John Lilly developed the first sensory-deprivation tank. In 1956 he wrote the first paper on the topic, in which he also "reviewed the history of solitary sailors, of people who have lived in the Polar night alone... These accounts bore out practically everything I had experienced in the tank. I was able to say in the paper that these experiences were very common among people in solitude and I owned up to one little hallucination, or as we now call it, visual display. It is a much less loaded term. Hallucinations have the connotation that you get caught in them, and that you begin to believe them, not as if real but as real." (Lilly, 1995, p4) In creating the flotation tank, Lilly had invented a literally immersive world that people could use for the exploration of the human mind and senses. Like all immersive worlds the flotation tank modelled or simulated a specific environment. Unlike Second Life,

which simulated heaven, the flotation tank modelled nothingness, the void. Flotation tanks offer a clear demonstration of the fact that human consciousness creates patterns and narratives out of whatever material lies at hand, even when nothing at all except the workings of the human body itself lies at hand (cf Lilly, 1995; Kelly, 2011) In 2011, for the first time since the nineteen seventies, I underwent a course of flotation tank experiments, spending three or four hours per session in a tank.

When I first lay in the tank and closed the door I went through a lengthy period of itching. My attention focused on different parts of my body and was immediately drawn to any minute sensation. The slightest itch would become a magnet for attention.

I then made a conscious attempt to stop this by focusing on silently chanting the mantra I was given forty years ago while being trained in Transcendental Meditation. This worked insofar as I stopped concentrating on my skin, but My attention also kept slipping away from the mantra. I began to have fleeting thoughts that passed rapidly in and out of view. They sped up in a way that felt increasingly uncomfortable until I switched my focus completely and was simply lying in a warm bath.

I found that I could readily switch from one mode or level, of experience to another. I could be a boy in a bath, experiencing floating in a liquid that made sinking impossible. In this mode I looked around and felt like a child at bath time. I could switch to being intensely aware of surface activity and monitor my skin and hair. I could sink into reveries of fleeting thought. I could drift as though on the edge of sleep. I could switch between these almost at will. More accurately, perhaps, I found that whenever I became bored or uncomfortable I did switch levels, although there were times when I became aware that I was deciding whether to stay with what I was experiencing or switch.

(Kelly, 2011, p10)

Later during the session, the process "felt close to the dreaming or fantasising that occurs as you drift into or drift out of sleep" (Kelly, 2011, p11) Research in Sweden has confirmed that these feelings occur in most users and "that floating is a method generally perceived as pleasant and comfortable, that actual pain relief may be achieved, and that very deep relaxation may be obtained. Furthermore, we showed that altered states of consciousness (ASC) are induced during the session. Examples of experiences during ASC are visual imagery, acoustic, perceptual phenomena, an altered sense of time, a changed bodily sense, perinatal experiences of the foetal stage and birth, and even transpersonal experiences. Some of these experiences may be both powerful and profound, but they are most often viewed as positive and desirable." (Kjellgren, Lyden & Norlander, 2008)

John Lilly defined the ontological status of these ASC early in his research, when he stated that "In the province of the mind what one believes to be true, either is true or becomes true within certain limits. These limits are to be found experimentally and experientially. When so found these limits turn out to be further beliefs to be transcended. In the province of the mind there are no limits. However, in the province of the body there are definite limits not to be transcended." (Lilly, 1972, p6)

We may usefully view Lilly's flotation tank as an analogue immersive world with

much to teach us about the possibilities of subsequent synthetic worlds.

Lateral Thinking

In 1970 Edward de Bono published *Lateral Thinking*, in which he invented or collated sets of techniques to enable people to "step outside themselves", escape what they experienced as the limitations of their normal thinking, and practise creativity from a new perspective. He explained that although "the information handling system called mind is highly effective it has certain characteristic limitations. These limitations are inseparable from the advantages of the system since both arise directly from the nature of the system. It would be impossible to have the advantages without the disadvantages. Lateral thinking is an attempt to compensate for these disadvantages while one still enjoys the advantages." (de Bono, 1970, p18)

From this beginning de Bono grew an entire industry, introducing PO, the Six Hats method of discussion, and latterly CoRT. He premises his work entirely on the belief that everybody can and should learn to think and solve problems more efficiently, more effectively and more imaginatively, and that habits of mind prevent people doing this.

Along similar lines, although with far less evidence to support him, Tony Buzan claims to have invented mind-mapping, which builds upon methods of visual mapping that have a history stretching back at least as far as the third century when Porphyry of Tyros created a "mind map" of the concepts of Aristotle. Whatever his status as its inventor, and however sceptically we may regard the claims he has made for it, Buzan has undoubtedly popularised mind-mapping as a current learning technique. He first presented it in 1974 during a BBC series he presented called Use Your Head. In the accompanying book, he argued that by observing "that the brain handles information better if the information is designed to 'slot in', and observing also the information from this chapter about the dimensional nature of the mind it follows that notes which are themselves more 'holographic' and creative will be far more readily understood, appreciated and recalled" Buzan, 1974, p 109). From this he grew an industry that continues to this day.

David Allen and others have applied this kind of thinking to the organisation of existing information. Getting Things Done (Allen, 2001) offers a technique for busy professionals to process all the information that gets thrown at them without losing concentration or focus. Allen specifically invokes zen practice in this. "In karate there is an image that's used to define the position of perfect readiness: 'mind like water.' Imagine throwing a pebble into a still pond. How does the water respond? The answer is, totally appropriately to the force and mass of the input; then it returns to calm. It doesn't overreact or underreact... Anything that causes you to overreact or underreact can control you, and often does. Responding inappropriately to your e-mail, your staff, your projects, your unread magazines, your thoughts about what you need to do, your children, or your boss will lead to less effective results than you'd like. Most people give either more or less attention to things than they deserve, simply because they don't operate with a 'mind like water.' (Allen, 2001, pp10-11)"

Brain-training

Some of these initiatives have attracted accusations of peddling pseudo-science in that they make claims that they cannot justify with scientifically

acceptable research results. Lumosity.com, which offers brain fitness training courses online "to improve human cognition through brain plasticity" (Lumosity, 2014) and through apps on tablets and other mobile devices, has tried to get round this problem by commissioning research. To this end, they have established the Human Cognition Project which gives grants to enable educational users of Lumosity to carry out scientifically valid trials. To this end, "University-based researchers, educators, clinicians, and study volunteers have joined the HCP network to understand and explore human cognitive abilities. HCP collaborators benefit from free use of Lumosity's tools and, in certain cases, limited access to select portions of Lumosity's database of cognitive game performance. (Lumosity, 2014)

For example, Lumosity's website states that if "you're an educator or educational researcher, we invite you to apply for the Lumosity Education Access Program (LEAP), which over 325 schools have received access to. You can read the requirements below. If accepted, you'll receive free Lumosity memberships for your students. You can incorporate Lumosity into your curriculum in any way - we simply ask that you contribute to the HCP by measuring and sharing information about the efficacy of Lumosity use among your students (Lumosity, 2014)". In this way the team at Lumosity attempt to jump the gun: to develop tools that they believe will work (but cannot yet convincingly demonstrate as working beyond doubt); to sell those tools to individuals while offering them free to institutions in exchange for data that will either help them argue their case, further develop their tools, or change direction.

And more...

Many software developers have become interested in this area, and travel in the wake of these larger groups. One can find literally hundreds of brain-training games on the Apple AppStore and Google Play. They all access different parts of the overall ideas, from Gratitude diaries to mental alertness games and meditation aids. These, and many other people, have stood on various parts of this ground, at different points in time, and have built up an important and useful toolkit there for exploring, exercising, developing and (dare one say) expanding our consciousness.

23.3. Maps and Toolkits

As we have seen, tools already exist to help us with all kinds of mental exercise. Lateral thinking helps us with problems that arise from our slow thinking: problems that require rational solutions. Meditation and flotation tanks can help us with our intuitive fast thinking by enabling us to step back from ourselves. Mindfulness and services like Lumosity claim to help us integrate our different modes of thinking. Flotation tanks and commonplacings help us experience ourselves as our selves with the aim of meta-programming our mental habits. Why, then, should we need, or desire, to create more tools? Why will we benefit from them? What do we believe missing from our current toolbox?

People have asked me these questions a lot but, to my mind, they address the issue from the wrong end. It does, indeed, make very little sense to look at the range of tools and techniques currently available and then decide to make another one, unless you have a specific reason for doing so. You might have a financial reason, in that you believe that you can create a market for your tool (albeit with the provisos and problems noted earlier), or you might

have a belief that the current tools all lack some important feature. I suggest, though, that we approach the issue rather differently.

In working with Second Life, and more recently with OpenSim, its open source near-clone, we have come to conclusions spelled out earlier about what draws people to it, and how they use it. We have argued that Second Life addresses people's emotional and interpersonal needs much more strongly than it works as an augmented meeting space. We can see this demonstrated in the fact that, although several companies have tried to build businesses offering "virtual meeting spaces", most of them have failed to generate enough custom to stay in business. Of the leading companies in this area, only Venuegen still carries on although its emphasis has switched in recent years from trying to attract international companies to trying to attract American K-12 schools. Project Wonderland has moved from being a company designed to earn a profit to an open source project. Teleplace, arguably once the biggest company in this area, opened in 2007 and closed in 2011. 3D ICC, the company that bought its intellectual property still exists, but has hardly become a household name. Currently it promotes a product called Terf that features "unified collaboration, gaming technology, and 3D virtual locations... [and] combines these three features to provide a more natural and impactful tool. Your associates, customers, partners, colleagues live and work in the real world. Contextually accurate locations provide critical advantage when you are delivering customer services, active training or distributed teaming support. It simply isn't enough to screen share or little panels of video." (3dicc, online) Unfortunately for the companies trying to operate in this field, it turns out that most people agree with our findings and *do* find themselves able and willing to deal with rational decision-making in a flat 2D environment, layered with group video chat where necessary. Much more rational discussion takes place using Skype, Google Hangout or Acrobat Connect, than takes place in "3D virtual locations" because, as our research shows, the strengths of synthetic worlds lie elsewhere.

Having said that, we can find examples of people successfully using online worlds for specific teaching and training purposes. AppState University, for example, has run a distance learning programme for teachers, primarily in ActiveWorlds, for over a decade. However, AppState had a very specific problem in that their students all had full time jobs and mostly lived several hours drive from the campus. They felt glad of an opportunity to study from home after work and accepted the synthetic world as a necessary tool for their learning, *in their specific circumstances*. In return the team at AppState recast the entire course as a series of gamified challenges that demanded collaborative work and exploration within the environment itself. The environments they used, including a small Wild West town, did not resemble a university campus, and the students' avatars did not sit at lectures in "virtual classrooms". Rather, the environment that the students entered became part of the narrative structure that would guide their experience through each module. AppState's enduring success shows that successful attempts to teach within immersive worlds also depart dramatically from the standard model of "virtual buildings" where avatars enter classrooms or meeting rooms and sit at tables to participate in discussion using their own names. (Riedl, 2004; Sanders & Tashner, 2006)

To approach the issue differently, we should start by noticing that immersive worlds have certain strengths, and that these strengths relate to intuitive and emo-

tional fast thinking, and to the ways in which people perceive themselves and interact with others. Immersive worlds seem good at fostering playfulness, which takes many forms including experimenting with self-presentation. Research shows that "communicators in virtual worlds adopt different stances towards their avatar in response to various personal and situational stimuli that emanate from both their real and 'second' life. Furthermore, they cycle through a variety of avatar-self couples, particularly on the telepresence dimension." (Schultze & Leahy, 2009, p14). Immersion and augmentation, then, form a continuum that itself forms only one dimension of a multi-dimensional experience. These kinds of experiences offer, among other things, a chance to experiment with identity, personae, and self-presentation and, in fact, immersive worlds seem extraordinarily good at enabling these kinds of experiments.

We have also observed that recent research indicates that our consciousness exists largely as a user illusion and that we actively construct ourselves and each other through the stories that we tell. Readers should understand *stories* here in an extended sense that includes visual storytelling of the kind that gets conveyed through facial expression, gesture, and unconscious body language, and not just the words we speak and the ancillary noises that we make. The narratives that form us range from the historical (the stories that exist in the environment when we enter it), the personal (stories we tell about ourselves, others and our life-world) and the social (stories that others tell about us, others and their life-worlds). They span stories from near and far geographically, and increasingly from around the globe; and stories from the past, present and future. These stories originate in human minds and not all of them emerge into the world. Some remain private, some passing fleetingly through our brain and get forgotten. Others get shared and, in this process, gain the opportunity to replicate memetically. People pass these along and, when memes gain traction, people may store them in artefacts, such as books, paintings, music and digital data, and as artefacts such as churches, football stadiums and shopping malls. Ideas spread as stories and these ideas, as embodied in memes, became replicators in their own right; a second example of what Richard Dawkins has termed universal Darwinism.

Daniel Dennett argues that, not only do memes, as replicators, act in their own self-interest; they also come in three distinct kinds. He says that we should "consider a meme as like a parasite which commandeers an organism for its own replicative benefit, but we should remember that symbionts can be classified into three fundamental categories:

Parasites, whose presence lowers the fitness of their host;

Commensals, whose presence is neutral (though, as the etymology reminds us, they "share the same table"); and

Mutualists, whose presence enhances the fitness of both host and guest (Dennett, 1998, p429),

In this picture, we face infection by memes on a daily basis, many of which will work to our benefit, and others of which will harm us. "One way to defend oneself against painful or manipulative memes is to construct what Dennett [1995] refers to as a meme-immunological system; that is, formulate new memes specifically to deflect memetic antigens" (Gabora, 1997, p580).

One way of achieving this involves the use of traditional and contemporary mind-altering and mind-washing tools, such as the ones discussed above. Meme theory suggests that these practices have more importance than we might have previously thought, since the ancient belief that we need to clear our heads and correct our balance from time to time now appears vindicated; that when

we have learned to put excessive reliance upon central vision, upon the sharp spotlight of the eyes and mind, we cannot regain the powers of peripheral vision unless the sharp and staring kind of sight is first relaxed. The mental or psychological equivalent of this is the special kind of stupidity to which Lao-tzu and Chuang-tzu so often refer. It is not simply calmness of mind, but "non-graspingness" of mind. In Chuang-tzu's words,

The perfect man employs his mind as a mirror. It grasps nothing; it refuses nothing. It receives, but does not keep.

One might almost say that it "fuzzes" itself a little to compensate for too harsh a clarity"

(Watts, 1957, p36).

The apparent strengths of immersive worlds thus become very important if we look at them from a meme-eye view, and I contend we would benefit from exploring these to see what beneficial uses we can make of them and whether we can use them to develop our meme-immunological systems. We need to develop techniques to strengthen some memes within us and dampen down others. As Daniel Dennett describes it, "My brain harbours the memes for celibacy and chastity (I couldn't write about them otherwise), but they never managed to get into the driver's seat in me. My brain also harbours the meme for fasting or dieting, and I wish I could get it more often into the driver's seat (so that I could more *wholeheartedly* diet), but, for one reason or another, the coalitions of memes that would incorporate the meme for dieting into my whole 'heart' seldom form a government with long-term stability. No one meme rules anybody; what makes a person the person he or she is are the coalitions of memes that govern - that play the long-term roles in determining which decisions are made along the way" (Dennett, 1995, pp367-368).

23.4. Blueprints

Knowing that our relationship to the memes that occupy us does not hinge upon rationality, we must devise techniques or tools to approach them indirectly; tools to support and advance the governing abilities of some meme coalitions that we judge beneficial. The process cannot hinge upon rationality because the "we" that would support and advance some meme coalitions itself consists solely of coalitions of memes. As we have seen in Part 2, my brain does not contain an "I" that can make rational judgements about the memes it contains. Rather my brain contains memes, some of which form coalitions that think of themselves as me. This forms the riddle at the centre of all practices of meditation, and this riddle, the circular motion of a cat chas-

ing its own tail, has always required techniques and technologies that enable one to approach it indirectly. The flotation tank offers one such technology by creating an immersive world that models the zero point, the void. In experiencing nothing we may begin to experience ourselves at work acting out ourselves. Flotation tanks need a lot of space and regular maintenance, however, whereas other more portable immersive worlds do not, which suggests strongly that we should begin to explore their efficacy in this area.

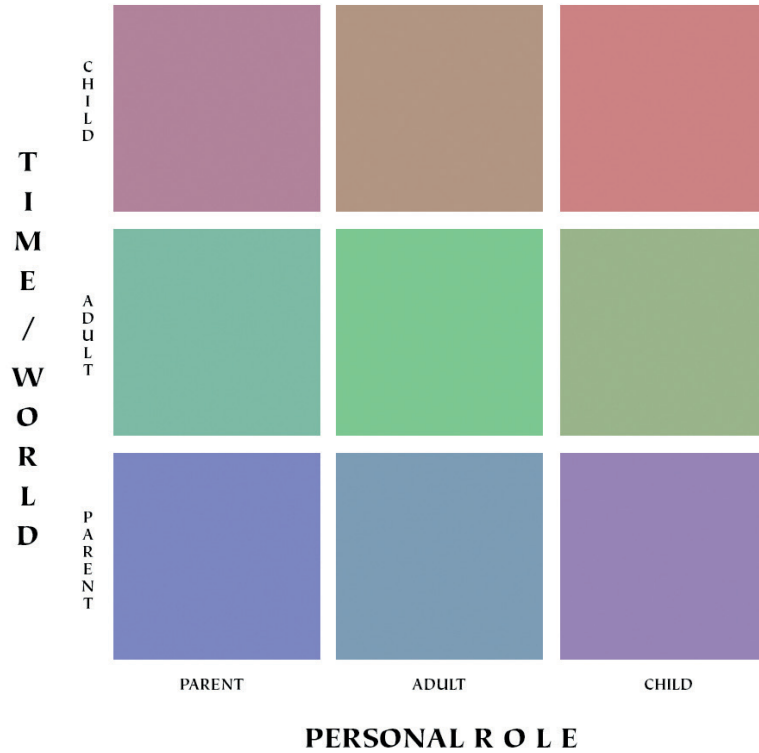
In doing this, we may find that we need no additional tools at all, but merely different techniques for using the ones we already have. In Transcendental Meditation, for example, the teacher will advise the pupil to sit in a relaxed position, close their eyes, and chant a mantra to themselves under their breath, without making any noise. This uses no physical tools, just internalised talking; and one could view it as just one particular way of using a chair. We should observe, not the chair, but the technique used while sitting in the chair. We may find the same with immersive worlds; that we do not need new kinds of worlds using new technology, but rather that we can develop new techniques for using immersive worlds, as they exist today, that will enable us to clear ourselves, to quieten the internal chatter of the memes we house, and to talk our selves into self-awareness and wellness.

In the last two years I have begun to sketch out some approaches to this, a number of which I have begun to test in practice. I have based these upon OpenSim, the open source equivalent of Second Life, which has several technical advantages.

1. Ener Hax has devised Sim-On-A-Stick which offers a "standalone, single user Windows package of OpenSim that runs on a USB flash drive or other convenient location. In addition to the OpenSimulator server, it contains the Apache web server, MySQL, and PHP in order to create a 'portable' server." (SoaS, 2014, web reference) Using this, I have constructed several one-person pocket worlds, which I have carried with me and used wherever and whenever I wanted.
2. Crista Lopes, professor of informatics at University of California, Irvine, has devised a system that permits avatars to travel between different OpenSim grids. This system of so-called hypergrids works on a federated basis. Groups of grid-owners can agree to allow traffic between their worlds to form larger clusters. This will allow for voluntary experiments on social interaction of a much finer-grained kind than Second Life makes possible. In the future it will also allow for users of personal pocket worlds to open up their personal spaces to other users, under their own control and according to their own rules. This will allow for immersive feedback loops and the development of reflective self-presentation games.
3. The open source nature of OpenSim means that one can add additional functionality if it proves necessary. OpenSim has already been forked several times, for specialised needs, including experiments at the University of Oulu, and we can expect to see it forked again.

Pocket World

I have begun experimenting with using a single-user pocket world as a meditative toy. At this initial stage my concern lay solely in seeing if the small world engaged me in any way, or if it quickly became dull or tiresome.



I quite literally played a hunch, and initially I just logged into the world and did whatever came to mind. During this process I became aware that although building inside the world interested me in its own right, my building activities might not lead me towards any specific goal. After a few sessions I found that this made the play seem somewhat arbitrary, and aimless in an unenjoyable way. I then divided an island into three, with each third standing in for one of the parent | adult | child triad in Transactional Analysis, as described above, in an attempt to amuse myself by dividing the world into functional areas. The division proved extremely useful because it gave me three playgrounds with very loosely defined rules, and the existence of these three gave me a set of relationships, and these in turn proved crucial to my exploration. Now, if I felt unhappy with one area, I felt unhappy about it in relation to one or both of the others, and I had the choice to improve the area I felt unhappy about or move to one of the other two.

I extended this process by developing an exercise called Pac Squared, which resembled some of the conceptual exercises that we used at the very beginning of the Marinetta Ombro project when we spent time trying to imagine the world into existence. I have a technique that enables me to layer three islands on top of each other in such a way that the user can effectively travel in time as well as space. These layers represent the island at the child, adult and parent times. Each of these points in time contains an island with three sections: parent, adult and child. This gives a three by three matrix, as follows.

This enables the user to map out their own, unique matrix of feelings and visceral impressions. The top row shows the child island. In this row we can enter

**T
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C H I L D	protector source of wisdom god	kindly stranger uncle or aunt bogeyman	playmate obstruction competitor
A D U L T	disapproval amusement acceptance	friend / lover team mate other	miracle learner future
P A R E N T	combatant ally rival	enemy / heretic fool just like me	stand-in lump of clay fear / worry
	PARENT	ADULT	CHILD

P E R S O N A L R O L E

data about how the child felt about the parent, adults, and itself and other children. The second row reflects the users' opinions, as an adult, of children, other adults and authority figures. The bottom row shows the users' parent-like responses to other parental figures, unattached adults, and children and adults in subservient positions. In one round of this game I filled in the matrix as follows:

This served to reveal quite a lot about my index of feelings towards others through contemplating an imaginary world that I intended to build. It resembled the process we went through into imagining Rosarian history and the culture that evolved through that. In a very similar way to our experiences with the Marinetta Ombro project, it pointed towards useful techniques for using an immersive world as a modelling tool before that world even exists. It also pointed towards the pleasures available through activities of creative planning. In this case, I took the fact that I experienced something viscerally that I already knew theoretically to mean that the experiment might have some value. From that point I have divided my time between devising ways of using the idea of the pocket world to create conceptual games, and spending time in twenty minutes sessions making something or arranging something on one part of the current version of the island. I have experimented with introducing a photographic gallery, based on photographs that I take every day, and then moving the placards containing the photos to various places on the island. I group them according to subjectively felt relationships and then regroup them until they "feel right". In this way I can visualise recent experiences as closer or further from me, and I can adjust my position on the island in order to observe and process the events from different points

of view. I have placed these in the Adult section of each island, and have also made experiments in observing how differently I assemble and display materials for the gallery in the different time zones.

Currently I have begun to program an oracle that will ask questions when I enter the world and, based on my answers, set the time of day or night to reflect my perceived mood. As part of this I intend to program trees, flowers and lanterns that will change visibly according to the time of day. These experiments build upon some similar experiments that I conducted on Rosario eight years ago when I successfully created both times and seasons programmatically. I intend these to provide a visible and audible feedback system for my mood upon entering the pocket world.

Snowcastle Valley

I claimed earlier that we become human beings through a meme-driven process that begins socially and only later attains a subjective feeling of individuality. My decision to begin experimenting with a single-user project does not change that. In the end we will need both. Indeed I began my experiments with an example of each: the pocket worlds project for individual self-reflection and self-experimentation, and a project called Snowcastle Valley, intended as a social world for children that would improve their soft skills while giving them opportunities to interact with each other through a set of never-ending social games, based around three parameters: heart, power and magic. I put this aside for various reasons, including the fact that I came to believe that I should begin by developing something entirely personal before attempting to involve other people as either designers or subjects. I intend to return to Snowcastle Valley in the future.

The reason for adopting this approach takes us back to an argument in Chapter 7, where I discussed the ways in which technical limitations in the software we used to develop *Marinetta* had effects in the aesthetic and narrative development of the world. We made up reasons inside the story to turn the technical limitations into natural phenomena within the immersive world. In playing with early versions of the pocket world I find myself coming up against both limitations within *OpenSim* and within my own abilities, and I find myself designing and programming around them. As this process continues I will gradually build up a set of software components – both synthetic artefacts and scripted actions – that will later prove useful in assembling both single user and social tools.

For the moment, then, the pocket world constitutes an open-ended personal set of experiments in which I intend to experience using this world in this way before forming any specific hypotheses to test. I report it here as a very brief outline of where such experiments might lead, and how they might get there. My work in this area has only just begun and currently proceeds by a process of autophenomenology in which I create and play in the hope of finding a fact that needs explaining. However, as a result of the work to date, I now know why my original intuitions bore fruit; I know what to look for and approximately where to find it. I know that it will resemble art and creative play at least as much as it resembles science, but that the play should leave traces that can serve as the basis for building scientific hypotheses.

In fact, I contend that the process of creating tools for co-authorship needs to begin with creative play – with art research – and only when we have achieved our creative goals should it move forward to more scientific testing. First we

need to create; secondly we need to play; and thirdly we need to move outside our selves and test. Testing will involve the creation of a set of hypotheses in the form of questions or statements that we can prove or disprove through repeatable experiments. By way of demonstration, I will conclude with a set of hypotheses that we might use to test a finished pocket world to determine whether or not people other than the original designers will derive benefits from it.

23.5. Hypotheses

In this thesis I have intended to demonstrate that this area has a genuine importance for anyone concerned with autonomously directed yet social lived self-growth. Synthetic worlds offer us an opportunity to develop new and more effective strategies for observing the stories that we tell about ourselves, in order to continually remake ourselves, and to enter consciously into this process and become our own co-authors. If we consist of stories all the way down then we need urgently to find tools to enable us to read our stories more closely and teach us to write ourselves better stories. I believe that we need to learn to co-author ourselves and the life-world we inhabit, a life-world that has become a ground of ubiquitous ambient learning.

This, however, raises the question: how will we know when we have built useful tools? We can answer this by saying that we will test them, but to do this we will need to have a set of testable hypotheses. In other words we will need to have some questions, and a means of getting answers to those questions that we can trust, and a process for getting those answers that other people can duplicate. This will take us beyond lone-wolf autophenomenology to the beginnings of an objective proof.

Based on what I have written so far, I propose the following hypotheses, to serve to both guide the development of self authoring tools such as the pocket world, and test their efficacy:

1. If someone uses a pocket world for 15 minutes a day every day for 4 weeks they will begin to develop personal rituals for using it.
2. If a user records their uses of the pocket world in a journal they will begin to observe ritualistic patterns in their usage.
3. If an observer experiments with their observed patterns they will gain the ability to explore and modify them.
4. If an explorer modifies their rituals inside the pocket world in a desired direction, they will experience congruent behavioural shifts in the real world.
5. An experienced observer will gain the ability to utilise their pocket world, their lived experience, and the journal that links them as a triadic tool for self authorship.

We can test these in three stages. In the first stage we can accept reports from test subjects using a framework based upon heterophenomenology. In the second stage we can seek out more numerically-based criteria for judging the reported effects. These might use some of the questionnaires devised by Martin Seligman and colleagues to measure aspects of happiness and well-being. We might expect readings to change over a defined period of time if the subjects report the tools as helpful. In the third stage we can conduct wider tests in which different groups receive different instructions with

regard to both the use and purpose of the worlds. We would look at this stage at whether the subjects' experiences depended to any extent on their understanding of the purpose of the experiment, and whether their experiences varied according to the regularity, the time of day, and the length of their daily sessions.

CONCLUSION

This thesis has twenty three chapters, and each chapter represents a step in a single argument. Each chapter draws from empirical experiments or from existing research, and each builds upon the preceding steps. I have summarised the argument here in a series of numbered paragraphs. Following Stephen Toulmin's model of argument (Toulmin, 1958), one might say that these paragraphs together form both a synopsis of the overall narrative of the thesis and a description of the claim that I make in the thesis. I elucidate the support or ground for this claim step-by-step in the twenty three main chapters of the thesis, with the warrants spelled out explicitly in Hypotheses, the final section of the final chapter.

The Claim: Part 1

- 1 In 2002 the Media Department at Arcada decided to institute "courses inside projects" rather than "projects inside courses". To this end the multimedia team investigated different options for a suitable umbrella project and chose to start an immersive world, and a virtual culture, which we opted to house inside Second Life. We called the island Rosario, and the capital of the island Marinetta.
- 2 In building the history of the island we developed a set of story-telling techniques that enabled us to insert the history of the island in to the gaps in the accepted historical narrative. These included the specifically Rosarian concept of the mighty fiction: a story true in one sense and false in another that constituted an audacious, insupportable yet useful explanation for something.
- 3 The most valuable educational resource we found in Second Life consisted of the other users, whose behaviours and desires provided us with the means to simulate real-life client and customer relationships. They also provided us with valuable creative interference since they had their own reasons for being in Second Life, no reason to privilege ours, and the ability (and sometimes the inclination) to co-author our project by hampering certain activities and opening up new and unexpected opportunities.
- 4 We discovered a regular pattern in the ways that our students and staff

approached Second Life. Some approached it as themselves, making avatars that reflected their own self-image. Some approached it as actors playing a part in an ongoing adventure story, making avatars that fitted the role they wanted to play. A smaller third group approached it as though everything, including the avatars, functioned as a customisable part in a construction set, and sought no continuity in, or relationship with, their avatars at all.

- 5 Using these factors, we created several courses, both for our own students and cross-disciplinary courses, which used the dynamics of Second Life to foster processes of self-assessment and self-reflection. In this way, participating in Second Life, and taking advantage of its strengths, caused us to restructure some of our 'real life' courses.
- 6 It became clear to us that Second Life functioned as a "place" where people told stories to each other; that it acted as the scaffolding upon which thousands of people erected stories of their own devising. One could never fully corroborate these stories, and so one could choose to experience Second Life itself as a mighty fiction.

The Claim: Part 2

- 7 We began to reflect theoretically, in part, because we became aware of other universities attempting to use Second Life as a distance learning tool without, from our perspective, attempting to form any understanding of its strengths and weaknesses, and of how it worked for its users. This caused us to ask questions about why it worked as it did, and these led us to ask further questions about the people who used it, what they learned there, and finally how all this related to "what it is like to be" a person.
- 8 We began by defining our terms and gathering a conceptual tool-kit. This took in the diagrammatic mapping of Charles Sanders Peirce which caused us to question the applicability of dualistic binary logic to our research.
- 9 Binary logic has severe limitations and Peirce suggests that it cannot apply to events or actions in which human agency plays a determining part. These, he claims, we must view from a triadic perspective. Viewed from this perspective, the mind / body split seems illusory and questions about the nature of human consciousness open up.
- 10 Daniel Dennett has proposed a non-dualistic view of human consciousness which has radical implications for the way we see ourselves. Much experimental evidence bears out his view that we contain no Central Scrutiniser, but instead have minds that result from a continual battle between competing ideas that circulate in our brains until one manages to get published, and becomes the one we remember thinking and acting upon.
- 11 Meme theory provides an explanation for how this multiple drafts model of consciousness might self-organise. This theory arose from Richard Dawkin's observation that Darwinism has general implications outside biological evolution, and a universal Darwinism suggests a mechanism by which

other replicators might arise. Dawkins proposed that memes, units of cultural information, might act just as "selfishly" as genes, and that we might regard human brains as sites of meme infection.

- 12 The details of this theory suggest that we should view our sense of possessing a continuous consciousness as nothing more than a benign user illusion. We feel and tolerate this illusion because it simplifies our daily lives and makes social routines smoother. We live a mighty fiction, because, in reality, we seem to consist not of a single unified consciousness, but rather of stories all the way down: stories that we learn from those who came before us, stories other people tell us, and stories we tell ourselves.

The Claim: Part 3

- 13 We can view language both as the first human tool and the proto-meme. All of what we regard as human culture builds upon this.
- 14 All tools and media form extensions of human senses and different arrays of tools create different media landscapes. This privilege some senses over others, and serve to shape our experienced life-worlds. They help determine what questions we ask of our environment, and what answers we expect.
- 15 Complex tools have led to social organisations that have exhibited tendencies towards radical monopolies, in which one class of industrialised services crowds out all other possibilities, as when the design of a city makes it impossible to walk to work, and the imposition of professional "standards" makes it impossible to do certain tasks oneself. People have attempted to counter this tendency, with varying degrees of success by moves to establish and maintain a commons: a pool of resources that exist for the common good and have no ready economic exchange value. Marshall McLuhan and Ivan Illich have pointed out how these tendencies have affected human life possibilities, and how these have changed as part of the development of newer tools.
- 16 The emerging digital age changes the human sensorium yet again and provides a new set of threats and opportunities which will exist only until the new media landscape becomes normalised once more. The current tendencies towards radical digital monopoly appear to seek to privatise the mental commons; to turn everything about our lives and our relationships into data, a commodity that corporations can buy and sell, and use to sell things back to us.
- 17 Parallel to this, we can see an environment of ambient learning arising, in which digital tools carry out their primary functions while also performing a secondary function of teaching us how to use them, while we use them. In this media landscape we easily become prosumers, teaching others what to produce for us next.
- 18 Since the emerging digital age has not yet fully taken shape, we have an opportunity to intervene to help determine its final form. However, since each

member of that "we" consists of coalitions of memes, we urgently need to learn skills of memetic self-authorship.

- 19 Self-authorship, by which I mean the deliberate cultivation of tools for self-reflection and techniques for incorporating the results into conscious personality development, has a long history that ranges from the use of the palace of memory techniques in Ancient Greece to commonplacing in eighteenth and nineteenth century Europe. This kind of technique largely disappeared during the period of mass production, to begin to return again recently in new guises. These techniques have, as noted earlier, a crucial importance in the evolving information age.
- 20 For a range of reasons, immersive worlds seem particularly useful as training tools in this field, because they appear to engage us at a pre-conscious, visceral level. They stand on the shoulders of a wide range of previous tools for internal quiet, reflection and self-improvement.
- 21 We need to begin the process of discovering their real capabilities by lone-wolf autophenomenological exploration, in order to abduce a set of hypotheses that we can then subject to valid testing. In other words, we need to begin with a creative process of art research, before moving on to a process of scientific validation. We have arrived at a situation in which we must necessarily play before we can get serious.
- 22 The study concludes with a skeletal blueprint for one possible single-user pocket world that the owner can use as a meditation chamber, a digital commonplace book and a tool for three dimensional diagramming.
- 23 This world derives its core abilities from conceptual and technical lessons learned during the empirical phase of the Marinetta Ombro project. It has the status of a proposal for a new field of research that seeks to use artistic techniques to create tools for self authorship, and then to validate these using methods recognised as scientific.

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"The haciendas must be built."

REFERENCES

The following lists detail the primary references that I used during my research. Not all of them have citations within the main text. Those that I have not cited nonetheless played an important part in forming my ideas during the process of drawing my ideas together and will provide valuable sources of knowledge and information for anyone wishing to pursue the ideas I have explored further.

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This thesis begins with an examination of the Marinetta Ombro project, a lengthy exercise in building a virtual culture, carried out by staff and students at Arcada, a university of applied science. Arcada's experience in Second Life revealed much about the ways people think, feel and act inside synthetic worlds, and about the ways in which they live their lives as narrative.

The second part of the thesis examines the implications of these findings with reference to the work of artists and writers, philosophers, theologians and neuro-scientists. It looks at how we relate to the world, where our ideas come from, what "it is like to be" us; and concludes that, in contrast to our usual view of ourselves, "we are stories all the way down".

In the final part of the thesis the author looks at how we can apply this knowledge socially and politically, in a world of ambient learning; and what tools we can build to assist us in authoring our (social) selves.

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