Esoteric Science and the Public: A Countercultural Approach to "Popularization"

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Introduction

The theories of modern science can and have been made relevant to non-specialists in areas of culture, society, psychology, worldview, and spirituality, to name a few. The goals and methods that are used to popularize science often transform the expression of 'pure' science into accessible forms for a diverse public. The more esoteric and complex theories of twentieth century science however, such as Quantum Mechanics (QM) and relativity, have long been a challenge to such popularizations. Furthermore, many scientists have declared them relevant only for the sub-atomic world of high-tech labs. The continuing mystery surrounding these theories has allowed non-specialist popularizations to make due with science as they please, leading to conflicting interpretations and miscommunication between scientists and mystical/spiritual markets like the New Age movement.

Academic study on the history of the popularization of these esoteric sciences has traditionally focused on specialist literature and education. This elitist approach excludes many forms of popularization in mainstream and especially counterculture media. It seems to ignore the fact that scientists popularizing their own work have vested interests and biases, and may therefore not be inherently more trustworthy sources than their nonspecialist colleagues. Indeed, deeper insights into the implications of modern science may be found outside the mainstream, where consumers are unsatisfied with any models produced by the dominant culture. Counterculture 'elites' such as Robert Anton Wilson attempt to transcend the limited applications offered by scientists as well as the inaccurate popularizations of the New Age movement; his book *Quantum Psychology* provides an interesting case study into the non-authoritarian appropriation of esoteric science. Wilson writes that he has "called the ideas herein Quantum Psychology because the consequences of Relativity, Uncertainty and Indeterminacy have literally earthshaking implications for our daily lives." His approach to popularization will be discussed in relation to content, context and impact in the recent history of science and the public.

Aim, Content and Structure of Quantum Psychology

Robert Anton Wilson (1932-2007), a prolific author and playwright, wrote for what is commonly regarded as the 'counterculture.' Several of his works, in fiction and non-fiction, were devoted to modern science and its relevance to the human experience in the realms of psychology and consciousness. The work under consideration here, *Quantum Psychology* (first printed in 1990) addresses the fact that science is part of the 'programming' of our minds and our everyday experience of reality. The 'software' for this programming includes "our language, our linguistic habits, and our over-all tribal or cultural world-view." Modern science provides updates to long-standing software, such as Aristotelian logic, but seems too contrary to our common sense to acknowledge. In 30 years of teaching non-Aristotelian logic (inspired in part by quantum logic and relativity), Wilson found that hardly anybody understands it at first.³

¹ Wilson, R.A.: p.69

² Wilson, R.A.: p.47

³ Wilson, R.A.: p.62

Wilson recognized his role as popularizer, proudly proclaiming his lack of credentials in science. His opening to Chapter 3 is as follows:

"I have no academic qualifications to write about Quantum Mechanics at all, but this has not prevented me from discussing the subject quite cheerfully in four previous books. Some readers may wonder where I get my *chutzpah*. After all, most physicists claim that the principles of QM contain problems (or paradoxes) so abstruse and recondite that it requires a college degree in advanced mathematics to understand the subject at all. I first began to doubt that notion after a novel of mine, *Schrödinger's Cat* – the first of my books to deal entirely with quantum logic – received a very favorable review in *New Scientist*, by a physicist (John Gribbin) who claimed that I must also have a degree in advanced physics to have written the book. [However,] all I had...was a mere survey course on the ideas of Relativity and QM."

Nevertheless, as a trained Transactional psychologist, he believed that "the study of brain science will prepare one for quantum theory better than the study of classical physics would."⁴

Counterculture, as its dictionary definition suggests, expresses a certain disdain for claims to authority in mainstream culture. Stricken by polio before the vaccine was developed in the 1930s, Wilson was cured by the Sister Kenny method - which the American Medical Association had publicly declared as quackery. He credited this experience for his own constant suspicion of "all 'Authorities' and Authoritarians." However, his role as a popularizer was not restricted to rebellion; his book on Quantum Psychology seems comparable to the annoying disturbance of Socrates, who went around Athens showing 'experts' the limits of their knowledge. Similarly, Wilson shows how the Uncertainty and Indeterminacy decreed by quantum physics, which originate in our individual brains and nervous systems, him the claims to authority that experts (and everybody else) can make. While this has yet to deter mainstream science and its popularizers from making authoritative statements, Wilson persisted by incorporating uncertainty and indeterminacy into his own style of writing.

⁴ Wilson, R.A.: p.39

⁵ Wilson, R.A.: p.142

⁶ Wilson, R.A.: p.68

Standard English	English Prime
1. The photon is a wave.	1. The photon behaves as a
	wave when constrained by
	certain instruments.
2. The photon is a particle.	2. The photon appears as a
	particle when constrained by
0.1.1	other instruments.
3. John is unhappy and	3. John appears unhappy
grouchy.	and grouchy in the office.
4. John is bright and	4. John appears bright and
cheerful.	cheerful on holiday at the
F 771	beach.
5. The car involved in the	5. In memory, I think I recall
hit-and-run accident was a blue Ford.	the car involved in the hit-
l blue Fora.	and-run accident as a blue
6. That is a fascist idea.	Ford
6. That is a fascist idea.	6. That seems like a fascist
7. Beethoven is better than	idea to me.
Mozart.	7. In my present mixed state
Wiozai t.	of musical education and
	ignorance Beethoven seems
8. Lady Chatterley's Lover	better than Mozart to me.
is a pornographic novel.	8. Lady Chatterley's Lover
25 a pornograpnic novel.	seems like a pornographic novel to me.
9. Grass is green.	
2. Class is given.	Grass registers as green to most human eyes.
10. The first man stabbed	10. I think I saw the first
the second man with a	man stab the second man
knife.	with a knife.
	With a Rime.

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⁷ Examples of E-Prime in *Quantum Psychology*

Quantum Psychology is written in E-Prime, a semantic adjustment proposed by Alfred Korzybski and David Bourland to conform modern language to the "multifaceted and highly flexible" nature of the post-Quantum views on reality. The principal amendment reflects the uncertainty and indeterminacy of quantum logic by removing the 'is of identity.' Instead of stating what something 'is', E-Prime forces one to write how something seems at a specific moment in spacetime. Opinions are structured into relative statements; also, any statement which cannot be translated into E-Prime becomes 'meaningless' or 'indeterminate' (not yet provable). Scientists and popularizers who do not recognize the meaninglessness of 'isness' statements confuse themselves and their readers, the meaningless of quantum mechanics and relativity. E-Prime, though paralleled in Von Neumann's quantum logic and Rapoport's four-valued logic, remains even more esoteric and hidden than the science behind it.

Besides structural adjustments, Wilson facilitates his popularization with references to parables, stories, anecdotes, and movies. Humor and hyperbolized opinions also help to balance the weight of complex theories; however, the most important contribution is explained in the Introduction:

"Each chapter in this book contains exercises which will help the readers comprehend and "internalize" (learn to use) the principles of Quantum Psychology. Ideally, the book should serve as a study manual for a group which meets once a week to perform the exercises and discuss the daily-life implications of the lessons learned."

These exercises are suggested as they teach much more than simply reading about the theories would. The common centrality of the observer in modern physics and perception psychology allows simple cognitive tasks (such as classifying certain statements as true, false, meaningless, or indeterminate) to illustrate how one's mental programming affects what one sees. Put together, these expository techniques help Wilson illustrate the relevance of such topics as existentialism, phenomenology, Bell's Theorem, quantum nonlocal correlations, Hidden Variables, and Von Neumann's Catastrophe of the Infinite Regress – all the while retaining their complexity as much as possible.

Mainstream "Popularization" and Quantum Psychology

Many roads lead to truth; hence, attempts to monopolize the transmission of science seem to invite resistance in increasingly diverse forms. Also, new theories may pass through numerous 'mediators' before reaching a broad public; Wilson for example recognizes his own reliance on popularizers. ¹² One of the most popular sources for scientific knowledge, the New Age movement, has promoted attempts at synthesis with mystical ideas with varying degrees of success. Amongst the more well known and profitable forms, such as the documentary-film "What the Bleep Do We Know," the

⁸ English Prime is an addition to General Semantics, a system of semantic hygiene described in Korzybski's *Science and Sanity* in 1933.

⁹ Cooter, Roger: p.245

¹⁰ Wilson, R.A.: p.35

¹¹ Wilson, R.A.: p.50

¹² Wilson, R.A.: p.173

blending of ideas tends to be unscrupulous and entertainment-oriented. Cooter has noted two complaints against all forms of popularization, to which popular ones like *What the Bleep* seem particularly vulnerable; namely, that they distort subjects for a good story line, and that they often lack proper acknowledgement of sources.¹³

These complaints do not appear applicable in the case of *Quantum Psychology*. While popular science has become a profitable market good, ¹⁴ Wilson never attained commercial success. His work caters to a relatively small portion of society: those in the counterculture who seek intellectually responsible material outside of mainstream media and education. While the book does not present itself with academic-style references, every concept – whether endorsed or not – is duly acknowledged within the text. Furthermore, this provision of competing theories serves to explicate one of Wilson's main themes; that modern science forces us to admit uncertainty and indeterminacy in all the models we use. The contemporary view of science as a "continuous process of reformulation" of knowledge recognizes the fact that we continuously update the way we think, speak and interact with reality. (Whether this implies progress or not remains open to debate. Wilson does correlate some modern ideas with aspects of ancient philosophy such as Buddhist paradoxical logic, pre-Socratic agnosticism, and Taoist 'nonlocality.') ¹⁶

Drawing on Roger Cooter's discussion of popularization may allow us to understand Wilson's goals in explaining esoteric science for a non-specialist audience. Cooter believes that "the problematic of the popularization of science is that the very language we use (e.g. 'popularization') belongs to a discourse of analysis that is ideologically and culturally loaded." He is referring to the traditionally elitist view of popularization (diffusionism), where the natural knowledge cultivated by elites is perceived as being simplified for popular consumption, with theoretical content taking a backseat to clarity. However, "Such a model obviously makes it difficult to conceptualize change." Elites do not have a monopoly on natural knowledge, or on making statements that assume the form of undisputable fact, and it is this tendency towards authoritativeness which Wilson undermines.

Indeed, the diffusionist structure merely serves to maintain the authority of science. A familiar credo in some New Age circles is the belief, supported by an interpretation of quantum physics (particularly when stated without E-Prime), that 'you create your own reality.' Such liberal statements borrow credibility by accepting science as a higher form of truth. Wilson counters these interpretations, not by attacking the liberty they take, but by modifying their message in the way that quantum physics and relativity seem to demand in the first place: "what the popularizers should say, if they aimed at accuracy, would take a more limited and existential form. You create your own

¹³ Bowler, Peter J.: p.185

¹⁴ Vincent, Bernadette B.: p.321

¹⁵ Vincent, Bernadette B.: p.335

¹⁶ Wilson, R.A.: p.194

¹⁷ Cooter, Roger: p.248

¹⁸ Cooter, Roger: p.241

model of reality, or you create your own *reality-tunnel*. Each of these formulations refers to definite and specific experiences in space-time, which easily confirm themselves in both daily-life demonstration and in controlled laboratory experiments on perception." This limiting form rings true for everybody who makes statements on science, whether specialist or popularizer; therefore, it seems that Wilson's 'countercultural' books work to hijack and dismiss the very concept of authority.

To overcome the elitist language of authority, and its appropriation by popularizations, Cooter notes that new metaphors for 'popularization' may be needed. Where he introduces "grafting, appropriation, and transformation," ²⁰ I should like to add a reference to Wilson's work through the notion of 'transduction.' ²¹ In his synthesizing approach, the isomorphism (similarity of form) between esoteric science and other forms of knowledge are explained. Furthermore, Wilson doesn't shun the complexity of original theories (except for their math equations) but shows them in all their weaknesses and strengths. This relatively honest comparison between forms of knowledge helps to accomplish what Cooter concludes to be the proper definition of popularization: "the successful replacement of epistemologies of common experience by the epistemologies of authentic science." ²² The epistemological tools which Wilson provides, in keeping with his preferred models of Quantum theory, conform the knowledge of the public to that of science itself.

Mediating Between Science and the Public

The well-known concept of two independent cultures (like *The Two Cultures* of C.P. Snow) has fostered a slew of misconceptions between scientists and the public. Regarding people like Newton, Einstein or Bohr as the spiritual guides of mankind²³ has made them appear culturally transcendent and ideologically neutral.²⁴ Such a positivistic attitude removes the responsibility of science for the fruits of its labor, while the public (other than a few conspicuous villains) seem equally passive and blameless in receiving its 'revelations.' The horror of twentieth century wars has helped to shift the 'spiritual' role of science out of the hands of scientists and into those of non-specialist popularizers. Bridging the division or gulf "between a small elite of learned scientists and the mass of other citizens" has thus become the job of mediators like Wilson.

One of the main issues facing academic researchers in the field of popular literature pertains to the assessment of authority of those dubbed 'non-specialist' writers. Wilson's case is all the more perplexing as he seems to elude the non-specialist tag; I have personally conceived of his approach as the 'specialization in generalization,' or a specialty in fostering general knowledge. While he enters into more detail in some areas

¹⁹ Wilson, R.A.: p.36

²⁰ Cooter, Roger: p.249

²¹ Wilson, R.A.: p.135. "Transduction, in Information Theory, designates the translation of form from one information system to another."

²² Cooter, Roger: p.253

²³ Vincent, Bernadette B.: p.330

²⁴ Cooter, Roger: p.245

²⁵ Vincent, Bernadette B.: p.319

than others, he uses what he considers the most up-to-date scientific models (including Relativity Theory, Quantum Mechanics, Information Theory, Chaos Theory, General Semantics and Transactional Psychology) to account for any isomorphism between them. This approach, while linking banal occurrences in daily life to high science, easily fills a 200-page book on psychology, but more importantly calls attention to wider issues which specialists are likely to evade. ²⁶ Furthermore, the models are simplified to the extent that most (if not all) of the mathematical calculations are left out, but their interpretation remains complex and engaging.²⁷ Traditionally, dissolving specialization for public consumption has been considered too open or too threatening.²⁸ However, in 'translating' modern science for the (countercultural) public, Wilson's "form of resistance to dominant authority and belief"29 seems to effect a cancellation of authority itself. The tools of science are laid out, in this case to improve cognitive abilities as well as general knowledge.

Peter Bowler announced in his article on the writing of popular science that his investigation of popularization extended to "how science is presented to the public." ³⁰ This approach seems limited by the traditional, top-down approach to the spread of knowledge. In the case of non-specialist writing on esoteric science such as that of Wilson, it may be more appropriate to investigate how the public presents science to itself. Indeed, "If professional scientists hold the monopoly of true, valid statements, everyone else – whatever his or her capacities – is 'the public.'"³¹ As a non-specialist, Wilson manages to confront the reader with multiple interpretations of QM; combining this with thought-provoking group exercises at the end of each chapter, he encourages the audience to actively assimilate or reject scientific information.³² By elucidating the metastructures or foundations of modern scientific knowledge about the 'nature of reality,' he helps to eliminate the barriers between public and scientist.

Counterculture Producers, Publishers and the Public

Situating source material in the literature popularizing science can be difficult if not impossible, as one text might be considered scientific, or New Age, philosophy, pop culture, and so on. Demographics, date of print, changes in scientific theories, world politics and the like may affect the type of source audiences search for. The internet in particular offers an enormously expanded range of media sources and formats, with equally diverse levels of 'factual' information. It is now the most popular arena for counterculture media, an important characteristic of which has been the appropriation of perceived 'elite' knowledge and material for 'grassroots' purposes. Science, which has been called "the most potent instrument of persuasion in our culture," 33 has also served to empower this movement in spite of (or perhaps because of) the dominant forms of media.

²⁶ Bowler, Peter J.: p.162

²⁷ Bowler, Peter J.: p.164

²⁸ Cooter, Roger: p.245

²⁹ Cooter, Roger: p.249

³⁰ Bowler, Peter J.: p.159

³¹ Vincent, Bernadette B.: p.322

³² Vincent, Bernadette B.: p.334

³³ Cooter, Roger: p.237

In the case of Wilson, whose work has been classified amongst a myriad of categories, scientific theory offers the tools to improve one's cognitive abilities in processing information. When asked about his connection to the New Age movement, he once noted his description as "the counterculture of the counterculture. I'm some kind of antibody in the New Age movement. My function is to raise the possibility, "Hey, you know, some of this stuff might be bullshit." As a result, Wilson caters to counterculture 'elites' – elites in the cultural, not social sense.

As the self-proclaimed fringe of the dominant culture, counterculture media can only be situated in literary study when, as Cooter noted, the models of science in popular culture allow for cultural stratifications which do not map onto social stratifications.³⁵ In other words, the knowledge procured by a section of society does not necessarily correspond to its social standing. Wilson tackles scientific theories which very few media will touch, including those that do and do not appear viable to current understanding.

The limitations on the information provided to the public can in part be traced to the market economy and its reliance on publishers and producers as "arbiters of what the public [is] perceived to want." The science produced and marketed by professionals often maintains a positivistic spin, serving a homogeneous culture which simply does not appear to exist. One 20th century response has been for non-specialist publishers to fill the niche this creates by offering "rebellious and counterculture material." New Falcon Publications, the publisher of much of Wilson's work, proudly proclaims its circulation of "authors whose work most other publishers consider 'too controversial.' For us, it is precisely such material that we wish to publish." While this may sound like an invitation for authors to write 'anything that goes,' many (including Wilson) have doctoral degrees in psychology and have turned to New Falcon simply because larger publishers have indeed turned them down.

Counterculture consumers seem to be at least as diverse in their origins and interests as those of the dominant culture. As such, their opinions on esoteric science can still be tied in to their individual biases, no matter how far they stray from the 'norm.' On the back cover of *Quantum Psychology*, it is claimed that "Some say it's materialistic, others call it scientific and still others insist it's mystical," while New Scientist magazine queries, "What great physicist hides behind the mask of Wilson?" Wilson traverses all these modes of perception on purpose, leaving the reader with the authority to sort out their own biases in the light of any commensurability that he purports to find.

Online reviews, while mostly anonymous and of ambiguous utility, can provide an indication of the goals and tastes of the readership of literature which popularizes science. The following quotes are from buyers of Wilson's work on Amazon.com (a major media corporation):

"The author alternates between explaining the absurdly obvious and inherently esoteric while splicing the text with great anecdotes and forceful humour. This makes easier reading for what would otherwise be a very challenging subject."

³⁴ Interview with R.A. Wilson

³⁵ Cooter, Roger: p.252

³⁶ Bowler, Peter J.: p.160

³⁷ New Falcon Publications

"this is a great contribution towards a better understanding of the human psychology. Furthermore, this book successfully [sic] merges the worlds of nature sciences particularly physics, quantum physics and philosophy with the study of psychology. After each chapter you become a different person, by developing a much more relaxed and better ways [sic] of seeing and interacting with the surrounding and every day life challenges, yet the book stays deep in every idea it dares to present and discusses [sic]."
"It is rather like a 'How to guide' for paradigm shifting at will or Mindfulness training for the Western Mind."

And on the negative side:

"As a professional physicist I found RAW's exposition comical, he proudly states that he has never studied Physics, which "is" painfully obvious to someone who has. This of course made me extremely wary of anything else he wrote as I am not able to judge the material in the same manner, but his grasp appears similarly weak and superficial." 38

The overall reception seems positive, geared towards the readability and usefulness of the information provided. However, the latter quote is just as telling; a specialist audience is often poorly served to find their discipline 'translated' for a non-specialist public. As Reingold has noted in his study of science in film, "Every genre of exposition...imposes a structure and a dynamic on their subject matters. In ways sometimes subtle, sometimes gross, different messages are conveyed not always matching the intentions and needs of the creators of the exposition, their audiences, or the actual participants in the events described." It may seem that the lay public, who cannot readily challenge esoteric knowledge, are the principle dupes in this quagmire; however, specialists may be equally ignorant of the implications of their field.

Esotericism and Common Knowledge

The innovations of theories such as relativity and Quantum Mechanics have overturned classical physics and much of our understanding of 'reality,' yet although they are now a century old, the knowledge and transmission of these theories has been extremely limited. This lack of impact has been largely neglected in academic research, ⁴⁰ as my own searches have confirmed. Even amongst the highly educated, only those who major in physics have a chance to learn about the conceptual issues of 'weird science.' However, in my personal communication with a few of these physics students in Great Britain and Canada, I have been told that instruction is usually restricted to mathematical calculations while the conceptual issues are mostly ignored.

This reluctance to challenge or change 'common sense' understanding seems to have become tradition. Bowler notes that in the past, "Theoretical innovations such as relativity were actually marketed to the public as so esoteric that only a handful of experts could understand them." Certainly, even the best-informed physicists have trouble understanding each other in the most complex areas of Quantum Mechanics. These esoteric theories continually form a challenge to all popularizing enterprises, the best-informed physicists have the solution of the public as so esoteric that only a handful of experts could understanding each other in the most complex areas of Quantum Mechanics.

³⁸ Amazon.com

³⁹ Reingold, Nathan: p.229

⁴⁰ Cooter, Roger: p.238

⁴¹ Müller, Rainer: p.200

⁴² Bowler, Peter J.: p.165

⁴³ Wilson, R.A.: p.189

⁴⁴ Vincent, Bernadette B.: p.328

the changing format and content of popularization over the decades has increased the potential for transmission. (Science fiction for example, although it does tend to deviate from 'pure' science, has become an enormous commercial enterprise in literature and film.) In *Quantum Psychology*, Wilson was able to construct a historical narrative which facilitates the understanding of parallel developments in philosophy, physics and psychology. The wide context provided by these disciplines, and illuminating examples from daily life, provide a resource for cross-referencing models according to the biases and strengths of individual readers. Wilson helps common sense, or 'brain software,' change in accordance with science, no matter how esoteric it may appear.

In mainstream media, the image of esoteric, unfathomable knowledge perpetuates the schism between scientists and the public. As the knowledge of the few has increased, the ignorance of the general public has followed suit. In the words of Bernadette Vincent, "the history of science should be complemented by a history of the advancement of ignorance" and the attempts to overcome it. To illustrate this fact, she provides an interesting reference to the *Encyclopedie française* from the 1930s, which wrote of a progression of difference between the scientist and the layman – first in 'styles' in the eighteenth century, then in 'languages' requiring 'translation' in the nineteenth century, and finally in 'worlds' in the twentieth century. If this is true, she says, it is because science and common sense have grown apart, and non-specialists will never be able bridge the gap. Her conviction that popularization must involve the "formation of a scientific spirit" therefore seems fully matched by Wilson's goal of instilling an updated psychological foundation through modern science. 46

The enormous influx of information (and entertainment) in the late 20th century provides great challenges in creating an oversight of how and what the public interacts with. 'Fact' and 'fiction' get mixed in such ways that common education stops short in providing the tools to discern between them. This leaves all of us vulnerable to manipulation through misinformation and disinformation ('innocent' and 'deliberate' falsehoods). As Robert K. Merton pointed out in 1938, the unintelligibility of lofty ideas is readily exploitable by totalitarian leaders.⁴⁷ We have seen that in the market economy publishers exert some control over information as well, but that their alliances to profit and different areas of culture can stimulate diversity in the popularization of science. The relationship between science, its producers, and its consumers is therefore embedded in the idiosyncrasies of different cultures and ideologies.⁴⁸

The counterculture norms of independence and self-education have created a dynamic relationship with science that nullifies exploitation to some degree. This 'liberating' relationship between science and the public seems to be a central aspect of Wilson's work. In explaining theories such as Quantum Mechanics and relativity, as in many classrooms, he has to simplify or ignore most of the specialist math.⁴⁹ However, the conceptual implications for common sense, such as non-Aristotelian logic, nonlocality,

⁴⁵ Vincent, Bernadette B.: p.319

⁴⁶ Vincent, Bernadette B.: p.329

⁴⁷ Vincent, Bernadette B.: p.331

⁴⁸ Cooter, Roger: p.237

⁴⁹ Hoekzema, Dick: p.391

etc. are embedded in the contexts of language, language structures, models of human psychology, and common behavioral habits.

Conclusions

Early in the twentieth century it was clear that science was promoting the equation of itself with common sense; 50 however, a popular shift towards post-Quantum 'common sense' which Wilson promoted at the end of the century has yet to materialize. Wilson's writings, in *Quantum Psychology* and elsewhere, both advocate and embody the ontological (or paradigm) shift which the majority of popular *and* specialist media are struggling to popularize, yet there seems to be no precedent in the study of such works.

Esoteric science, including the most complicated and specialized forms of modern theories in our understanding of nature and reality, has failed to break through in mainstream media without severely compromising itself. Claims to authority, commercialism and the incommensurability of science with common knowledge make it hard to expect anything else. However, the elitist research on the popularization of esoteric science has disregarded attempts by 'counterculture' mediators in appropriating accurate, relevant models for public consumption. Counterculture popularization in *Quantum Psychology* uses the dynamic structure of the new science itself to 'transduce' it into common sense language and perception. Generalist mediators such as Robert Anton Wilson seem to have successfully meshed content and structure into their popularizations, challenging the public to internalize modern science and overcome esotericism.

The question of authority in the public communication of science is still open,⁵¹ perhaps to the benefit of diversity in modern culture. Non-specialist mediators play a role in synthesizing knowledge for different levels of the public, whether playing the game of 'authority' or not. As Roger Cooter proposed for the history of science in popular culture, "by becoming more discursive about meanings and ambivalences, and less ideologically prescriptive," research may encounter those realms where esotericism 'is' no longer a compromising challenge.

⁵⁰ Cooter, Roger: p.246

⁵¹ Vincent, Bernadette B.: p.336

⁵² Cooter, Roger: p.247

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