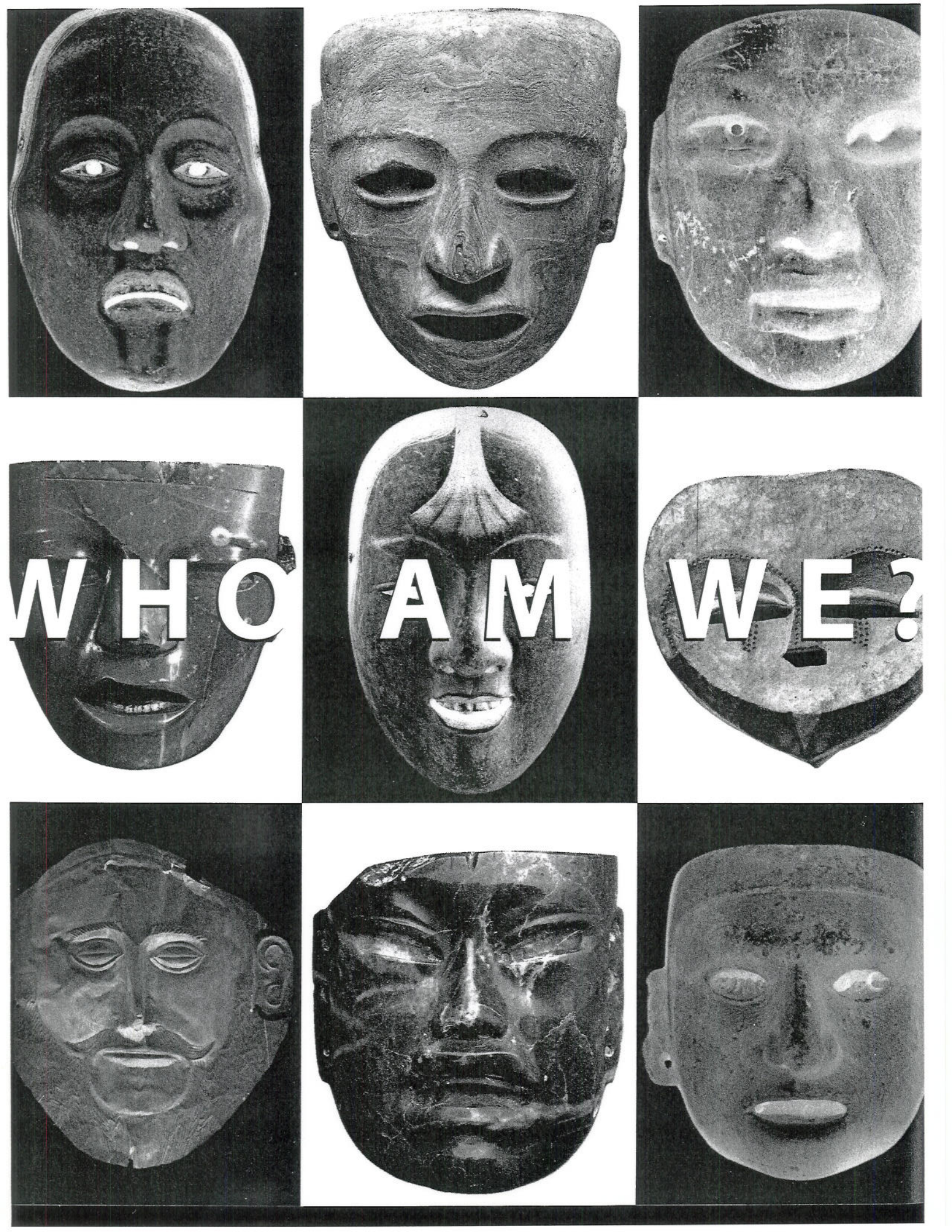
WHO
AM
WE?

There are many Sherry Turkles. There is the "French Sherry," who studied poststructuralism in Paris in the 1960s. There is Turkle the social scientist, trained in anthropology, personality psychology, and sociology. There is Dr. Turkle, the clinical psychologist. There is Sherry Turkle the writer of books – Psychoanalytic Politics *(Basic Books, 1978) and* The Second Self: Computers and the Human Spirit *(Simon & Schuster, 1984). There is Sherry the professor, who has mentored MIT students for nearly 20 years. And there is the cyberspace explorer, the woman who might log on as a man, or as another woman, or as, simply, ST.*

All of these Sherry Turkles have authored a new book, Life on the Screen: Identity in the Age of the Internet, *published November 30 by Simon & Schuster.* Life on the Screen *tells how the computer profoundly shapes our ways of thinking and feeling, how ideas carried by technology are reshaped by people for their own purposes, how computers are not just changing our lives but changing our selves.*

This story is borne of Turkle's past decade of research. In a series of pizza parties for MUDders in the Boston area, Turkle found conversations quickly turning to multiple personae, romance, and what can be counted on as "real" in virtual space. She soon turned to the world of Internet Relay Chat, newsgroups, bulletin boards, and commercial online services. She also examined the burgeoning cyberspace lives of children and teenagers.

As recently as 10 to 15 years ago, it was almost unthinkable to speak of the computer's involvement with ideas about unstable meanings and unknowable truths. The computer had a clear intellectual identity as a calculating machine. In an introductory programming course at Harvard University in 1978, one professor introduced the computer to the class by calling it a giant calculator. Programming, he reassured the students, was a cut-and-dried technical activity whose rules were crystal clear.

Such reassurances captured the essence of what I call the modernist computational aesthetic. It's the computer as calculator: no matter how complicated a computer might seem, what happened inside it could be mechanically unpacked. Programming was a technical skill that could be done a right way or a wrong way. The right way was dictated by the computer's calculator essence. The right way was linear and logical. This linear, logical [model] guided thinking not only about technology and programming, but about economics, psychology, and social life. Computational ideas were one of the great modern metanarratives, stories of how the world worked that provided unifying pictures and analyzed complicated things by breaking them down into simpler parts. Computers, it was assumed, would become more powerful, both as tools and as metaphors, by becoming better and faster calculating machines, better and faster analytical engines.

From today's perspective, the fundamental lessons of computing are wrong. Programming is no longer cut and dried. Are you programming when you customize your word-processing software? When you design "organisms" to populate a simulation of Darwinian evolution in the computer game *SimLife*? Or when you build a room in a MUD so that opening a door to it will cause "Happy Un-Birthday" to ring out on all but one day of the year?

The lessons of computing today have to do not with calculation and rules, but with simulation, navigation, and interaction. The very image of the computer as a giant calculator has become quaint and dated. Fifteen years ago, most computer users were limited to typing commands. Today they use off-the-shelf products to manipulate simulated desktops, draw with simulated paints and brushes, and fly in simulated airplane cockpits.

Today's computational models of the mind often embrace a postmodern aesthetic of complexity and decentering. Mainstream computer researchers no longer aspire to program intelligence into computers but expect intelligence to emerge from the interactions of small subprograms.

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In the games in the Sim series *(SimCity, SimLife, SimAnt, SimHealth)*, you try to build a community, an ecosystem, or a public policy. The goal is to make a successful whole from complex, interrelated parts. Tim is 13, and among his friends, the

We are moving from modernist calculation toward postmodernist simulation, where the self is a multiple, distributed system. By Sherry Turkle

What has she found? That the Internet links millions of people in new spaces that are changing the way we think and the way we form our communities. That we are moving from "a modernist culture of calculation toward a postmodernist culture of simulation." That life on the screen permits us to "project ourselves into our own dramas, dramas in which we are producer, director, and star.... Computer screens are the new location for our fantasies, both erotic and intellectual. We are using life on computer screens to become comfortable with new ways of thinking about evolution, relationships, sexuality, politics, and identity."

Turkle's own metaphor of windows serves well to introduce the following samplings from her new book. Those boxed-off areas on the screen, Turkle writes, allow us to cycle through cyberspace and real life, over and over. Windows allow us to be in several contexts at the same time – in a MUD, in a word-processing program, in a chat room, in e-mail.

"Windows have become a powerful metaphor for thinking about the self as a multiple, distributed system," Turkle writes. "The self is no longer simply playing different roles in different settings at different times. The life practice of windows is that of a decentered self that exists in many worlds, that plays many roles at the same time." Now real life itself may be, as one of Turkle's subjects says, "just one more window."

Sim games are the subject of long conversations about what he calls Sim secrets. "Every kid knows," he confides, "that hitting Shift-F1 will get you a couple of thousand dollars in *SimCity*." But Tim knows that the Sim secrets have their limits. They are little tricks, but they are not what the game is about. The game is about making choices and getting feedback. Tim talks easily about the trade-offs in *SimCity* – between zoning restrictions and economic development, pollution controls and housing starts.

SimLife is Tim's favorite game, because "even though it's not a videogame, you can play it like one." By this he means that as in a videogame, events in the Sim world move things forward. ("My trilobytes went extinct. They must have run out of algae. I didn't give them algae. I forgot. I think I'll do that now.") He is able to act on a vague intuitive sense of what will work even when he doesn't have a verifiable model of the rules underneath the game's behavior. When he is populating his universe in a biology laboratory scenario, Tim puts in 50 each of his favorite creatures, such as trilobytes and sea urchins, but puts in only 20 sharks. ("I don't want 50 of these, I don't want to ruin this.") Tim can keep playing even when he has no idea what is driving events. For example, when his sea urchins become extinct, I ask him why.

Tim: I don't know, it's just something that happens.

ST: Do you know how to find out why it happened?

Tim: No.

ST: Do you mind that you can't tell why?

Tim: No. I don't let things like that bother me. It's not what's important.

"Your orgot is being eaten up," the game tells us. I ask Tim, "What's an orgot?" He doesn't know. "I just ignore that," he says. "You don't need to know that kind of stuff to play."

I am clearly having a hard time hiding my lifetime habit of looking up words that I don't understand, because Tim tries to appease me by coming up with a working definition of orgot. "I ignore the word, but I think it is sort of like an organism. I never read that, but just from playing, I would say that's what it is."

The orgot issue will not die: "Your fig orgot moved to another species," the game informs us. This time I say nothing, but Tim reads my mind: "Don't let it bother you if you don't understand. I just say to myself that I probably won't be able to understand the whole game any time soon. So I just play it."

I begin to look through dictionaries, in which orgot is not listed, and finally find a reference to it embedded in the game itself, in a file called READ ME. The file apologizes for the fact that orgot has been given several and in some ways contradictory meanings in this version of *SimLife*, but one of them is close to organism. Tim was right enough.

Children are comfortable with the idea that inanimate objects can both think and have a personality. But they no longer worry if the machine is alive. They know it is not. The issue of aliveness has moved into the background as though it is settled. But the notion of the machine has expanded to include its having a psychology. In talking about computers in a psychological way, children allow computational machines to retain an animistic trace, a mark of having passed through a stage in which the issue of the computer's aliveness was a focus of intense consideration.

Children also grant new capacities and privileges to the machine world on the basis of its animation if not its life. They endow artificial objects with properties, such as having intentions and ideas, previously reserved for living beings.

Granting a psychology to computers can mean that objects in the category "machine," like objects in the categories "people" and "pets," are fitting partners for dialog and relationship. Although children increasingly regard computers as mere machines, they are also increasingly likely to attribute qualities to them that undermine the machine/person distinction.

Children develop the two concepts in parallel and take what they understand to be the computer's psychological activity (interactivity as well as speaking, singing, and doing math) as a sign of consciousness. But they insist that breathing, having blood, being born, and, as one put it, "having real skin" are the true signs of life. Children today contemplate machines they believe to be intelligent and conscious yet not alive.

The characters one creates for a MUD are referred to as one's personae. This comes from the Latin *per sonae*, "that through which the sound comes." In other words, an actor's mask.

These children who so effortlessly split consciousness and life are forerunners of a larger cultural movement. Adults, less willing than children to grant that today's most advanced computer programs are even close to conscious, no longer flinch from the very idea of a self-conscious machine. Even a decade ago, the idea of machine intelligence provoked sharp debate. Today, the controversy about computers does not turn on their capacity for intelligence but on their capacity for life. We are willing to grant that the machine has a "psychology," but not that it can be alive.

People accept the idea that certain machines have a claim to intelligence and thus to their respectful attention. They are ready to engage with computers in a variety of domains. Yet when people consider what if anything might ultimately differentiate computers from humans, they dwell long and lovingly on those aspects of people that are tied to the sensuality and physical embodiment of life. It is as if they are seeking to underscore that although today's machines may be psychological in the cognitive sense, they are not psychological in a way that comprises our relationships with our bodies and with other people. Some computers might be considered intelligent and might even

become conscious, but they are not born of mothers, raised in families, they do not know the pain of loss, or live with the certainty that they will die.

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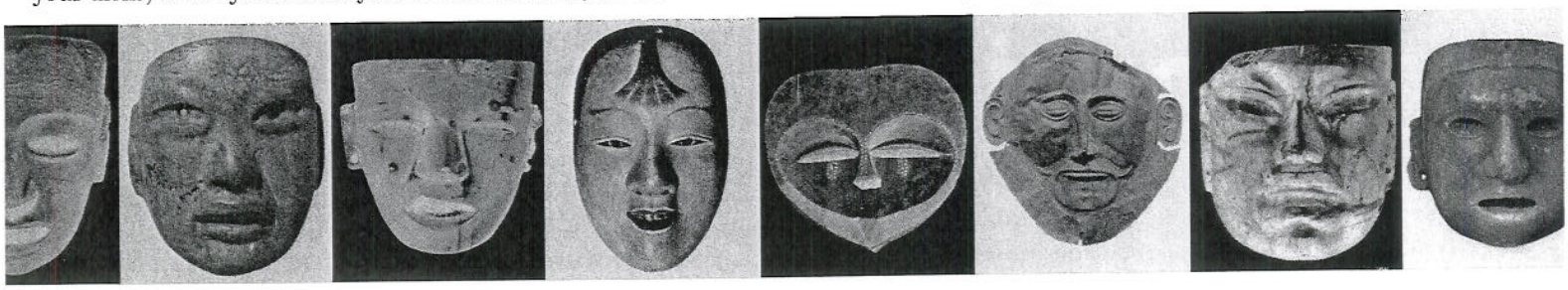
The 13-year-old Tim thinks that *SimLife*, unlike videogames and computer programming, is useful. "You get to mutate plants and animals into different species. You get to balance an ecosystem. You are part of something important." Tim thinks that the "animals that grow in the computer could be alive," although he adds, "This is kind of spooky."

Robbie, a 10-year-old who has been given a modem for her birthday, puts the emphasis not on communication but on mobility in considering whether the creatures she has evolved on *SimLife* are alive. "I think they are a little alive in the game, but you can turn it off and you cannot save your game, so that all the creatures you have evolved go away. But if they could figure out how to get rid of that part of the program so that you would have to save the game ... if your modem were on, [the creatures] could get out of your computer and go to America Online."

Sean, 13, who has never used a modem, comes up with a variant on Robbie's ideas about travel. "The creatures could be more alive if they could get into DOS. If they were in DOS, they would be like a computer virus and they could get onto all of your disks, and if you loaned your disks to friends, it would be like they were traveling."



In the late 1970s and early 1980s, when I studied children's ideas about aliveness in dealing with stationary computer objects, the focus of children's thinking had shifted to an object's psychological properties. Today, in children's comments about the creatures that exist on simulation games, in talk about travel via circulating disks or over modems, in talk of viruses and networks, *movement* is resurfacing as a criterion for aliveness. Children widely assume that the creatures on Sim games have a desire to move out of the system into a wider digital world.

The creatures in simulation space challenge children to find a new language for talking about them and their status, as do mobile robots that wander about, making their "own decisions" about where to go. When MIT professor Rodney Brooks asked his 10-year-old daughter whether his mobots, or mobile robots, were alive, she said, "No, they just have control." For this child, and despite her father's work, life is biological. You can have consciousness and intentionality without being alive. At the end of the 1992 Artificial Life Conference, I sat next to 11-year-old Holly as we watched a group of robots with distinctly different "personalities" compete in a special robot Olympics. I told her I was studying robots and life, and Holly became thoughtful. Then she said unexpectedly, "It's like Pinocchio. First, Pinocchio was just a puppet. He was not alive at all. Then he was an alive puppet. Then he was an alive boy. A real boy. But he was alive even before he was a real boy. So I think the robots are like that. They are alive like Pinocchio [the puppet], but not like real boys."

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In the early 1970s, the face-to-face role-playing game *Dungeons and Dragons* swept the game culture. The term "dungeon" persisted in the high-tech culture to connote a virtual place. So when virtual spaces were created that many computer users could share and collaborate within, they were deemed Multi-User Dungeons or MUDs, a new kind of social virtual reality. (Some games use software that make them technically MUSHes or MOOs, but the term MUD has come to refer to all of the multi-user environments.)

MUDs are a new kind of virtual parlor game and a new form of community. In addition, text-based MUDs are a new form of collaboratively written literature. MUD players are MUD authors, the creators as well as consumers of media content. In this, participating in a MUD has much in common with scriptwriting, performance art, street theater, improvisational theater, or even commedia dell'arte. But MUDs are something else as well.

As players participate, they become authors not only of text but of themselves, constructing new selves through social interaction. Since one participates in MUDs by sending text to a computer that houses the MUD's program and database, MUD selves are constituted in interaction with the machine. Take it away and the MUD selves cease to exist: "Part of me, a very important part of me, only exists inside PernMUD," says one player. Several players joke that they are like "the electrodes in the computer," trying to express the degree to which they feel part of its space.

All MUDs are organized around the metaphor of physical space. When you first enter a MUD, you may find yourself in a medieval church from which you can step out into the town square, or you may find yourself in the coat closet of a large, rambling house. For example, when you first log on to LambdaMOO, one of the most popular MUDs on the Internet, you see the following description:

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The Coat Closet. The Closet is a dark, cramped space.
It appears to be very crowded in here; you keep bump-
ing into what feels like coats, boots, and other
people (apparently sleeping). One useful thing that
you've discovered in your bumbling about is a metal
doorknob set at waist level into what might be a
door. There's a new edition of the newspaper. Type
"news" to see it.
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In the MUDs, virtual characters converse with each other, exchange gestures, express emotions, win and lose virtual mon-

y, and rise and fall in social status. A virtual character can also ie. Some die of "natural" causes (a player decides to close them own), or they can have their virtual lives snuffed out. This is all chieved through writing, and this in a culture that had appar- ntly fallen asleep in the audiovisual arms of television. Yet this iew writing is a kind of hybrid: speech momentarily frozen into irtifact, but curiously ephemeral artifact. In this new writing, inless it is printed out on paper, a screenful of flickers soon eplaces the previous screen.

The anonymity of MUDs gives people the chance to express nultiple and often unexplored aspects of the self, to play with heir identity and to try out new ones. MUDs make possible the creation of an identity so fluid and multiple that it strains the imits of the notion. Identity, after all, refers to the sameness between two qualities, in this case between a person and his or her persona. But in MUDs, one can be many.

A 21-year-old college senior defends his violent characters as "something in me; but quite frankly I'd rather rape on MUDs where no harm is done." A 26-year-old clerical worker says, "I'm not one thing, I'm many things. Each part gets to be more fully expressed in MUDs than in the real world. So even though I play more than one self on MUDs, I feel more like 'myself' when I'm MUDding." In real life, this woman sees her world as too narrow to allow her to manifest certain aspects of the person she feels herself to be. Creating screen personae is thus an opportunity for self-expression, leading to her feeling more like her true self when decked out in an array of virtual masks.

MUDs imply difference, multiplicity, heterogeneity, and fragmentation. Such an experience of identity contradicts the Latin root of the word, *idem*, meaning "the same." But this contradiction increasingly defines the conditions of our lives beyond the virtual world. MUDs thus become objects-to-think-with for thinking about postmodern selves. Indeed, the unfolding of all MUD action takes place in a resolutely postmodern context. There are parallel narratives in the different rooms of a MUD. The cultures of Tolkien, Gibson, and Madonna coexist and interact. Since MUDs are authored by their players, thousands of people in all, often hundreds at a time, are all logged on from different places; the solitary author is displaced and distributed. Traditional ideas about identity have been tied to a notion of authenticity that such virtual experiences actively subvert. When each player can create many characters in many games, the self is not only decentered but multiplied without limit.

As a new social experience, MUDs pose many psychological questions: If a persona in a role-playing game drops defenses that the player in real life has been unable to abandon, what effect does this have? What if a persona enjoys success in some area (say, flirting) that the player has not been able to achieve? Slippages often occur in places where persona and self merge, where the multiple personae join to comprise what the individual thinks of as his or her authentic self.

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Doug is a Midwestern college junior. He plays four characters distributed across three different MUDs. One is a seductive woman. One is a macho, cowboy type whose self-description stresses that he is a "Marlboros rolled in the T-shirt sleeve 194►

Next Tech

By Steve G. Steinberg

Reading Arpa's research entrails to determine the future direction of technology.

Arpa, the Advanced Research Projects Agency of the US Department of Defense, is best known for funding the development of the Internet. But their monetary support has also brought us important technologies such as RISC microprocessors and flat-panel displays. Although intended for military use, these devices have thoroughly infiltrated our daily lives. To find out what's ahead, it makes sense to look at what Arpa is funding today.

Unfortunately, that isn't easy. Arpa's scattershot approach to funding supports lots of small and diverse projects rather than a few big ones. So, to get some sense of the hot topics and how they interrelate, *Wired* mapped Arpa's research using a technique known as co-word analysis. Originally developed by sociologists studying the spread of scientific ideas, the procedure exposes the forces and structures embedded in text.

First, we analyzed all the Arpa project summaries related to computer technology and picked out the most common technical keywords, such as *network* and *imaging*. Then we mapped the results: words that commonly occur together in project descriptions are located near one another, and the type size of a word reflects its frequency. Linked keyword pairs are connected by lines, whose thickness indicates the strength of the connection. For example, the final map shows a thick line between *ATM* and *network* because almost every project that mentions one of these words also mentions the other.

The map exposes two main clusters of research. On the left, the focus is on parallel computing. Words like *compiler*, *language*, and *memory* encircle *parallel*, reflecting the key concerns of the field. On the right is the network cluster, largely unlinked to any of the terms that surround *parallel*. Here, applications such as *imaging* and *encryption*, as well as technologies like *ATM* and *mobile*, radiate out.

Co-word maps are an efficient way to visualize the structure of a research field. Of course, they also have their pitfalls. They don't distinguish between multiple meanings of a word, for instance, which can produce misleading results. But as a first approximation, a co-word analysis provides a useful battle chart of scientific research and a peek at the future. ■ ■ ■

Steve G. Steinberg (steve@wired.com) *is a section editor at* Wired.

Who Am We?

◄ 152 kind of guy." The third is a rabbit of unspecified gender who wanders its MUD introducing people to each other, a character he calls Carrot. Doug says, "Carrot is so low key that people let it be around while they are having private conversations. So I think of Carrot as my passive, voyeuristic character." Doug's fourth character is one that he plays only on a MUD in which all the characters are furry animals. "I'd rather not even talk about that character because my anonymity there is very important to me," Doug says. "Let's just say that on FurryMUDs I feel like a sexual tourist." Doug talks about playing his characters in windows and says that using windows has made it possible for him to "turn pieces of my mind on and off.

"I split my mind.... I can see myself as being two or three or more. And I just turn on one part of my mind and then another when I go from window to window. I'm in some kind of argument in one window and trying to come on to a girl in a MUD in another, and another window might be running a spreadsheet program or some other technical thing for school.... And then I'll get a real-time message that flashes on the screen as soon as it is sent from another system user, and I guess that's RL. RL is just one more window, and it's not usually my best one."

Old distinctions between the human and the technological are becoming more complex. Are we living life on the screen or in the screen?

Play has always been an important aspect of our individual efforts to build identity. The psychoanalyst Erik Erikson called play a "toy situation" that allows us to "reveal and commit" ourselves "in its unreality." While MUDs are not the only "places" on the Internet in which to play with identity, they provide an unparalleled opportunity for such play. On a MUD one actually gets to build character and environment and then to live within the toy situation. A MUD can become a context for discovering who one is and wishes to be. In this way, the games are laboratories for the construction of identity.

Stewart, a 23-year-old physics graduate student, uses MUDs to have experiences he can't imagine for himself in RL. His intense online involvements engaged key issues in his life but ultimately failed to help him reach successful resolutions.

Stewart's real life revolves around laboratory work and his plans for a future in science. His only friend is his roommate, another physics student whom he describes as even more reclusive than himself. For Stewart, this circumscribed, almost monastic student life does not represent a radical departure from what has gone before. He has had heart trouble since he was a child; one small rebellion, a ski trip when he was a college freshman, put him in the hospital for a week. He has lived life within a small compass.

Stewart is logged on to one MUD or another for at least 40 hours a week. It seems misleading to call what he does there playing. He spends his time constructing a life that is more expansive than the one he lives in physical reality. Stewart, who has traveled very little and has never been to Europe, explains with delight that his favorite MUD, although played in English, is physically located on a computer in Germany and has many European players.

On the German MUD, Stewart shaped a character named Achilles, but he asks his MUD friends to call him Stewart as much as possible. He wants to feel that his real self exists somewhere between Stewart and Achilles. He wants to feel that his MUD life is part of his real life. Stewart insists that he does not role play, but that MUDs simply allow him to be a better version of himself.

On the MUD, Stewart creates a living environment suitable for his ideal self. His university dormitory is modest, but the room he has built for Achilles on the MUD is elegant and heavily influenced by Ralph Lauren advertising. He has named it "the home beneath the silver moon." There are books, a roaring fire, cognac, a cherry mantel "covered with pictures of Achilles's friends from around the world.

"You look up ... and through the immense skylight you see a breathtaking view of the night sky. The moon is always full over Achilles's home, and its light fills the room with a warm glow."

Beyond expanding his social world, MUDs have brought Stewart the only romance and intimacy he has ever known. At a social event in virtual space, a "wedding" of two regular players on a German-based MUD I call Gargoyle, Achilles met Winterlight, a character played by one of the three female players on that MUD. Stewart, who has known little success in dating and romantic relationships, was able to charm this desirable player.

On their first virtual date, Achilles took Winterlight to an Italian restaurant close to Stewart's dorm. He had often fantasized being there with a woman. Stewart used a combination of MUD commands to simulate a romantic evening – picking Winterlight up at the airport in a limousine, driving her to a hotel room so that she could shower, and then taking her to the restaurant and ordering veal for her.

This dinner date led to others during which Achilles was tender and romantic, chivalrous and poetic. The intimacy Achilles experienced during his courtship of Winterlight is unknown to Stewart in other contexts. "She's a very, she's a good friend. I found out a lot of things, from things about physiology to the color of nail polish she wears." Finally, Achilles asked for Winterlight's hand. When she accepted, they had a formal engagement ceremony on the MUD.

At the engagement, Winterlight gave Achilles a rose she had worn in her hair; Achilles gave her 1,000 paper stars.

Although Stewart participated in this ceremony alone in his room with his computer and modem, a group of European players actually traveled to Germany, site of Gargoyle's host computer, and got together for food and champagne. Many of the 25 guests at the German celebration brought gifts and dressed specially for the occasion. Stewart felt as though he 196►

◂ 194 were throwing a party. This was the first time that he had ever entertained, and he was proud of his success. In real life, Stewart felt constrained by his health problems, his shyness and social isolation, and his narrow economic straits. In the Gargoyle MUD, he bypassed these obstacles, at least temporarily.

The psychological effects of life on the screen can be complicated: a safe place is not all that is needed for personal change. Stewart came to MUDding with serious problems, and for Stewart, playing on MUDs led to a net drop in self-esteem. MUDs did help Stewart talk about his troubles while they were still emotionally relevant; nevertheless, he is emphatic that MUDding has ultimately made him feel worse about himself. MUDding did not alter Stewart's sense of himself as withdrawn, unappealing, and flawed.

While Stewart has tried hard to make his MUD self, the "better" Achilles self, part of his real life, he says he has failed. He says, "I'm not social. I don't like parties. I can't talk to people about my problems." The integration of the social Achilles, who can talk about his troubles, and the asocial Stewart, who can only cope by putting them out of mind, has not occurred. From Stewart's point of view, MUDs have stripped away some of his defenses but have given him nothing in return. In fact, MUDs make Stewart feel vulnerable in a new way. Although he hoped that MUDs would cure him, it is MUDs that now make him feel sick. He feels addicted to MUDs: "When you feel you're stagnating and you feel there's nothing going on in your life and you're stuck in a rut, it's very easy to be on there for a very large amount of time."

Stewart cannot learn from his character Achilles's experience and social success because they are too different from the things of which he believes himself capable. Despite his efforts to turn Achilles into Stewart, Stewart has split off his strengths and sees them as possible only for Achilles in the MUD. It is only Achilles who can create the magic and win the girl. In making this split between himself and the achievements of his screen persona, Stewart does not give himself credit for the positive steps he has taken in real life. Like an unsuccessful psychotherapy, MUDding has not helped Stewart bring these good experiences inside himself or integrate them into his self-image.

Relationships during adolescence are usually bounded by a mutual understanding that they involve limited commitment. Virtual space is well suited to such relationships; its natural limitations keep things within bounds. As in Thomas Mann's *The Magic Mountain*, which takes place in the isolation of a sanatorium, relationships become intense very quickly because the participants feel isolated in a remote and unfamiliar world with its own rules. MUDs, like other electronic meeting places, can breed a kind of easy intimacy. In a first phase, MUD players feel the excitement of a rapidly deepening relationship and the sense that time itself is speeding up. "The MUD quickens things. It quickens things so much," says one player. "You know, you don't think about it when you're doing it, but you meet somebody on the MUD, and within a week you feel like you've been friends forever."

In a second phase, players commonly try to take things from the virtual to the real and are usually disappointed.

Gender-swapping on MUDs is not a small part of the game action. By some estimates, Habitat, a Japanese MUD, has 1.5 million users. Habitat is a MUD operated for profit. Among the registered members of Habitat, there is a ratio of four real-life men to each real-life woman. But inside the MUD the ratio is only three male characters to one female character. In other words, a significant number of players, many tens of thousands of them, are virtually cross-dressing.

What is virtual gender-swapping all about? Some of those who do it claim that it is not particularly significant. "When I play a woman I don't really take it too seriously," said 20-year-old Andrei. "I do it to improve the ratio of women to men. It's just a game." On one level, virtual gender-swapping is easier than doing it in real life. For a man to present himself as female in a chat room, on an IRC channel, or in a MUD, only requires writing a description. For a man to play a woman on the streets of an American city, he would have to shave various parts of his body; wear makeup, perhaps a wig, a dress, and high heels; perhaps change his voice, walk, and mannerisms. He would have some anxiety about passing, and there might be even more anxiety about not passing, which would pose a risk of violence and possibly arrest. So more men are willing to give virtual cross-dressing a try. But once they are online as female, they soon find that maintaining this fiction is difficult. To pass as a woman for any length of time requires understanding how gender inflects speech, manner, the interpretation of experience. Women attempting to pass as men face the same kind of challenge.

Virtual cross-dressing is not as simple as Andrei suggests. Not only can it be technically challenging, it can be psychologically complicated. Taking a virtual role may involve you in ongoing relationships. You may discover things about yourself that you never knew before.

Case, a 34-year-old industrial designer who is happily married to a co-worker, is currently MUDding as a female character. In response to my question, "Has MUDding ever caused you any emotional pain?" he says, "Yes, but also the kind of learning that comes from hard times.

"I'm having pain in my playing now. Mairead, the woman I'm playing in MedievalMUSH, is having an interesting relationship with a fellow. Mairead is a lawyer, and the high cost of law school has to be paid for by a corporation or a noble house. She fell in love with a nobleman who paid for her law school. [Case slips

Have we become cyborgs, transgressive mixtures of biology, technology, and code?

into referring to Mairead in the first person.] Now he wants to marry me although I'm a commoner. I finally said yes. I try to talk to him about the fact that I'm essentially his property. I'm a commoner ... I've grown up with it, that's the way life is. He wants to deny the situation. He says, 'Oh no, no, no.... We'll pick you up, set you on your feet, the whole world is open to you.' But every time I behave like I'm now going to be a countess some day ... as in, 'And I never liked this wallpaper anyway,' I get pushed down. The relationship is pull up, push down. It's an incredibly psychologically damaging thing to do to a person. And the very thing that he liked about her that she was independent, strong, said what was on her mind, it is all being bled out of her."

Case looks at me with a wry smile and sighs, "A woman's life." He continues: "I see her [Mairead] heading for a major psychological problem. What we have is a dysfunctional relationship. But even though it's very painful and stressful, it's very interesting to watch myself cope with this problem. How am I going to dig my persona's self out of this mess? Because I don't want to go on like this. I want to get out of it.... You can see that playing this woman lets me see what I have in my psychological repertoire, what is hard and what is easy for me. And I can also see how some of the things that work when you're a man just backfire when you're a woman."

Life in cyberspace is not fair. Are MUDs good or bad for psychological growth? The answer, as in life, is unreassuringly complicated.

Case further illustrates the complexity of gender swapping as a vehicle for self-reflection. Case describes his RL persona as a nice guy, a "Jimmy Stewart type like my father." He says that in general he likes his father and he likes himself, but he feels he pays a price for his low-key ways. In particular, he feels at a loss when it comes to confrontation, both at home and in business dealings. Case likes MUDding as a female because it makes it easier for him to be aggressive and confrontational. Case plays several online "Katharine Hepburn types," strong, dynamic, "out there" women who remind him of his mother, "who says exactly what's on her mind and is a take-no-prisoners sort."

For Case, if you are assertive as a man, it is coded as "being a bastard." If you are assertive as a woman, it is coded as "modern and together."

Some women who play male characters desire invisibility or permission to be more outspoken or aggressive. "I was born in the South and taught that girls didn't speak up to disagree with men," says Zoe, a 34-year-old woman who plays male and female characters on four MUDs.

"We would sit at dinner and my father would talk and my mother would agree. I thought my father was a god. Once or twice I did disagree with him. I remember one time in particular when I was 10, and he looked at me and said, "Well, well, well, if this little flower grows too many more thorns, she will never catch a man."

Zoe credits MUDs with enabling her to reach a state of mind where she is better able to speak up for herself in her marriage ("to say what's on my mind before things get all blown out of proportion") and to handle her job as the financial officer for a small biotechnology firm.

"I played a MUD man for two years. First I did it because I wanted the feeling of an equal playing field in terms of authority, and the only way I could think of to get it was to play a man. But after a while, I got very absorbed by MUDding. I became a wizard on a pretty simple MUD. I called myself Ulysses and got involved in the system and realized that as a man I could be firm and people would think I was a great wizard. As a woman, drawing the line and standing firm has always made me feel like a bitch and, actually, I feel that people saw me as one, too. As a man I was liberated from all that. I learned from my mistakes. I got better at being firm but not rigid. I practiced, safe from criticism."

Zoe's perceptions of her gender trouble are almost the opposite of Case's. While Case sees aggressiveness as acceptable only for women, Zoe sees it as acceptable only for men. These stories share a notion that a virtual gender swap gave people greater emotional range in the real. Zoe says: "I got really good at playing a man, so good that whoever was on the system would accept me as a man and talk to me as a man. So, other guys talked to Ulysses guy to guy. It was very validating. All those years I was paranoid about how men talked about women. Or I thought I was paranoid. Then I got a chance to be a guy and I saw that I wasn't paranoid at all."

Virtual sex, whether in MUDs or in a private room on a commercial online service, consists of two or more players typing descriptions of physical actions, verbal statements, and emotional reactions for their characters. In cyberspace, this activity is not only common but, for many people, it is the centerpiece of their online experience.

On MUDs, some people have sex as characters of their own gender. Others have sex as characters of the other gender. Some men play female personae to have netsex with men. And in the "fake-lesbian syndrome," men adopt online female personae in order to have netsex with women. Although it does not seem to be as widespread, I have met several women who say they present as male characters in order to have netsex with men. Some people have sex as nonhuman characters, for example, as animals on FurryMUDs. Some enjoy sex with one partner. Some use virtual reality as a place to experiment with group situations. In real life, such behavior (where possible) can create enormous practical and emotional confusion. Virtual adventures may be easier to undertake, but they can also result in significant complications.

Martin and Beth, both 41, have been married for 19 years and have four children. Early in their marriage, Martin regretted not having had more time 198►

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◂ 197 for sexual experimentation and had an extramarital affair. The affair hurt Beth deeply, and Martin decided he never wanted to do it again. When Martin discovered MUDs he was thrilled. "I really am monogamous. I'm really not interested in something outside my marriage. But being able to have, you know, a Tiny romance is kind of cool." Martin decided to tell Beth about his MUD sex life and she decided to tell him that she does not mind. Beth has made a conscious decision to consider Martin's sexual relationships on MUDs as more like his reading an erotic novel than like his having a rendezvous in a motel room. For Martin, his online affairs are a way to fill the gaps of his youth, to broaden his sexual experience without endangering his marriage.

Other partners of virtual adulterers do not share Beth's accepting attitude. Janet, 24, a secretary at a New York law firm, is very upset by her husband Tim's sex life in cyberspace. After Tim's first online affair, he confessed his virtual infidelity. When Janet objected, Tim told her that he would stop "seeing" his online mistress. Janet says that she is not sure that he actually did stop.

"The thing that bothers me most is that he wants to do it in the first place. In some ways, I'd have an easier time understanding why he would want to have an affair in real life. At least there, I could say to myself, 'Well, it is for someone with a better body, or just for the novelty.' It's like the first kiss is always the best kiss. But in MUDding, he is saying that he wants that feeling of intimacy with someone else, the 'just talk' part of an encounter with a woman, and to me that comes closer to what is most important about sex.

"First I told him he couldn't do it anymore. Then, I panicked and figured that he might do it anyway because, unlike in real life, I could never find out. All these thousands of people all over the world with their stupid fake names ... no way I would ever find out. So, I pulled back and said that talking about it was strictly off limits. But now I don't know if that was the right decision. I feel paranoid whenever he is on the computer."

This distressed wife struggles to decide whether her husband is unfaithful when his persona collaborates on writing real-time erotica with another persona in cyberspace. And beyond this, should it make a difference if unbeknownst to the husband his cyberspace mistress turns out to be a 19-year-old male college freshman? What if "she" is an infirm 80-year-old man in a nursing home? And even more disturbing, what if she is a 12-year-old girl? Or a 12-year-old boy?

TinySex poses the question of what is at the heart of sex and fidelity. Is it the physical action? Is it emotional intimacy with someone other than one's primary partner? Is infidelity in the head or in the body? Is it in the desire or in the action? What constitutes the violation of trust?

And once we take virtuality seriously as a way of life, we need a new language for talking about the simplest things. Each individual must ask: What is the nature of my relationships? What are the limits of my responsibility? And even more basic: Who and what am I? What is the connection between my physical and virtual bodies? And is it different in different cyberspaces? These questions are equally central for thinking about community. What is the nature of our social ties? What kind of accountability do we have for our actions in real life and in cyberspace? What kind of society or societies are we creating, both on and off the screen?

If you come to MUDs with a self healthy enough to grow from relationships, the games can be very good. If not, you can be in for trouble.

When people adopt an online persona they cross a boundary into highly charged territory. Some feel an uncomfortable sense of fragmentation, some a sense of relief. Some sense the possibilities for self-discovery, even self-transformation. Serena, a 26-year-old graduate student in history, says, "When I log on to a new MUD and I create a character and know I have to start typing my description, I always feel a sense of panic. Like I could find out something I don't want to know." Arlie, a 20-year-old undergraduate, says, "I am always very self-conscious when I create a new character. Usually, I end up creating someone I wouldn't want my parents to know about.... But that someone is part of me."

Irony is about contradictions that do not resolve into larger wholes ... about the tension of holding incompatible things together because both or all are necessary and true. – Donna Haraway

As we stand on the boundary between the real and the virtual, our experience recalls what the anthropologist Victor Turner termed a liminal moment, a moment of passage when new cultural symbols and meanings can emerge. Liminal moments are times of tension, extreme reactions, and great opportunity. When Turner talked about liminality, he understood it as a transitional state, but living with flux may no longer be temporary. Technology is bringing postmodernism down to earth itself; the story of technology refuses modernist resolutions and requires an openness to multiple viewpoints.

Multiple viewpoints call forth a new moral discourse. The culture of simulation may help us achieve a vision of a multiple but integrated identity whose flexibility, resilience, and capacity for joy comes from having access to our many selves. But if we have lost reality in the process, we shall have struck a poor bargain. In Wim Wenders's film *Until the End of the World*, a scientist develops a device that translates the electrochemical activity of the brain into digital images. He gives this technology to his family and closest friends, who are now able to hold small battery-driven monitors and watch their dreams. At first, they are charmed. They see their treasured fantasies, their secret selves. They see the images they otherwise would forget, the scenes they otherwise

would repress. As with the personae one can play in a MUD, watching dreams on a screen opens up new aspects of the self.

However, the story soon turns dark. The images seduce. They are richer and more compelling than the real life around them. Wenders's characters fall in love with their dreams, become addicted to them. People wander about with blankets over their heads the better to see the monitors from which they cannot bear to be parted. They are imprisoned by the screens, imprisoned by the keys to their past that the screens seem to hold.

We, too, are vulnerable to using our screens in these ways. People can get lost in virtual worlds. Some are tempted to think of life in cyberspace as insignificant, as escape or meaningless diversion. It is not. Our experiences there are serious play. We belittle them at our risk. We must understand the dynamics of virtual experience both to foresee who might be in danger and to put these experiences to best use. Without a deep understanding of the many selves that we express in the virtual, we cannot use our experiences there to enrich the real. If we cultivate our awareness of what stands behind our screen personae, we are more likely to succeed in using virtual experience for personal transformation.

The imperative to self-knowledge has always been at the heart of philosophical inquiry. In the 20th century, it found expression in the psychoanalytic culture as well. One might say that it constitutes the ethic of psychoanalysis. From the perspective of this ethic, we work to know ourselves in order to improve not only our own lives, but those of our families and society. Psychoanalysis is a survivor discourse. Born of a modernist worldview, it has evolved into forms relevant to postmodern times. With mechanistic roots in the culture of calculation, psychoanalytic ideas become newly relevant in the culture of simulation. Some believe that we are at the end of the Freudian century. But the reality is more complex. Our need for a practical philosophy of self-knowledge has never been greater as we struggle to make meaning from our lives on the screen. ■ ■ ■