The Engine of the Underground: The Elite-Kiddie Divide

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ABSTRACT

Underground innovation communities, such as hackers and computer game modifiers have formed a unique type of information sharing community. As the nature of their communitions evolved to take advantage of new technologies like computer Bulletin Boards and the Internet, the social structure of these communities evolved as well. Understanding how these communities are internally socially divided into innovative "Elites" and follower "Kiddies" can shed important light on these influential, if sometimes destructive, underground electronic communities.

Categories and Subject Descriptors

K.4.2 Social Issues

General Terms

Economics, Security, Human Factors, Legal Aspects.

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INTRODUCTION

For almost every complex, proprietary system there is a community of users trying to change, modify, or break it. These users have no regard for the carefully constructed business models that manufacturers use to justify their closed architectures. Instead, driven by utility, curiosity, or, occasionally, anger, these user communities innovate within the manufacturers' systems, bypassing both legal and technical safeguards. These communities exist in many diverse markets. In the computer industry, for example, they are called "hackers" or "crackers," while in the world of telephony they are referred to as "phreakers." Sometimes undermining systems and sometimes expanding them, these innovation communities have a deep and complex relationship with the companies whose systems they modify.

The continuum of underground technical innovation communities, from the phreakers of the 1960s to the videogame modders of today, share many similar features in terms of underlying structure and methods In fact, there is a direct linkage between these communities. The original phreakers moved directly from exploring the phone system to exploring computer software and then to modifying hardware, for example. This transition was quite seamless: early hackers used the exact same computer bulletin board systems (BBS) to share information as the phreakers before them, and inherited the phreaker language, which they still use today.

Beyond this direct continuity, there is also continuity of methods and approaches. The communications systems, social structure, and methods of "attacking" proprietary systems are all substantially the same. Certainly, in the more recent internet era, these problems are all grouped under the "security" rubric, and are viewed to be outgrowths of a single type of hacker activity.

The unique structures of these communities are intimately linked with the ways in which they communicate and operate.

Communications and Underground Communities

BBSes and Community

Underground communities first became communities when they were able to communicate freely between members. Originally, the early phreakers used conference calls and printed journals to transmit information, but the advent of computer Bulletin Boards in the 1980s heralded the birth of true virtual communities. Bulletin Boards began springing up around the nation; by 1985, there were around 4,000, and, by 1990, over 30,000 BBSes existed in the United States alone [1]. Of course, only a fraction of these were devoted to underground innovation, but, even so, it is clear that BBSes brought about a new era of underground communication. Now, phreakers and early hackers could talk to each other en masse, as information sent to or "uploaded" onto one board would often be quickly copied to others. As a result, the discoveries of individual pirate innovators could be acted on by the community as a whole.

The primary way in which information is transferred on BBSes is through "philes." A phile, the peculiar phreaker spelling of file, is a text document containing information useful to hackers. Much of this material, is, of course, often of dubious value, but among all of the philes being uploaded to BBSes, there is a remarkable number that show impressive amounts of research and effort, and almost all have to do with parastic, primarily pirate underground, innovation. One partially complete site lists 2,229 original text philes related to phreaking alone, including 157 devoted purely to introductions to the field. [2] This does not count compilations, online articles from underground magazines, or other similar material – an astonishing output from an underground community.

These types of philes fall into four different categories. First, there are entire technical articles from Bell Labs or other research institutions that are patiently retyped and uploaded, often with extensive, intelligent commentary. An example of this sort of

work is an anonymous electronic phile on caller ID [3]. Not only did the author copy an entire Bell technical specifications sheet, but also apparently has a good understanding of it, to the point where he corrects a possible typo in the sheet by writing "I have copied this data as presented. I believe the transmission level is meant to be -13.5 dBm," instead of the 13.5 dBm given in the text.[4] These technical articles are closely related to the second major category of philes, those that contain the complete texts of long articles written on subjects of interests to phreakers and underground innovators.

Third, there are philes that contain original findings, such as circuit diagrams for new devices, descriptions of particular techniques or lists of specialized phone numbers that a phreaker has discovered. These sorts of highly technical articles are the key to the reason why underground communities are progressive, building on previous works. Some of these technical philes become classics, revised and updated like popular text books for over a decade. Bioc Agent 003's seven part "Course in Basic Telecommunications," for example, is many pages in length and covers a vast range of phreaker topics.

The number of original philes reflects the fact that, in order for a phreaker to demonstrate his skill, he needs to produce information that has never been seen before, and it needs to stand up to the approval of his peers. Thus, the first person to accomplish a difficult task will be accorded respect in proportion to the crack's difficulty. Bruce Sterling explains it in this manner, "The way to win a solid reputation in the underground is by telling other hackers things that could have been learned only by exceptional cunning and stealth." [1] Being the first to do things is the best way to prove oneself to other phreakers.

The stress on being original is clear from the way philes are written. Usually, they prominently feature the name of the author, along with the name of the BBS or group to which they belong. Additionally, phreaker publications emphasize original documents. The Legion of Doom Technical Journal, for example, has very strict editorial standards, especially for an underground publication, as it says in its introduction:

> The articles contained herein, are totally original unless otherwise stated. All sources of information for a specific article is [sic] listed in the introduction or conclusion of the article. We will not accept any articles that are unoriginal, plagiarized, or contain invalid or false information. [5]

If a phreaker wishes to get published, and see his name listed on many BBSs, he needs to do original, and interesting, research.

Besides technical information, philes serve the purpose of cementing community. Especially in the early days of phreaking, information-sharing and community-building went hand-in-hand. That is why the final type of philes were those that contained information on the status of fellow phreakers and BBSs, which serve to keep the community aware of arrests, the closing of BBSs, and retirements. Like much else in the phreaker world, these were voluminous in detail, with elaborate minutes being kept of underground meetings, and hundreds of messages from various phreaker groups in some philes.

In addition to philes uploaded individually to BBSs, the paper hacker publications were converted to digital form with issues that compile the most useful philes. Generally, they are run by a few innovators who serve as editors, in the manner of editors of scientific journals, sifting through large number of philes to pick out and publish a few articles. Outside of publications like Phrack and 2600, other publications are produced by exclusive groups of accomplished hackers and uploaded to elite phreaker BBSs. Among these are colorfully-named organizations like the Cult of the Dead Cow, the Phreaks Against Geeks, and the infamous Legion of Doom. One site, containing an incomplete collection of these publications, listed 27 different group journals and magazines all dealing with phreaking.

The means of information-sharing itself shaped the nature of the community for phreakers and early hackers. The result was something similar to the way the scientific community works today – if you were educated enough to understand the material and work with it, you were part of the community and expected to share in its information exchange. As one phreaker wrote of the sharing of credit card codes:

> [The BBS members] introduced me to codez, illicit calling card codes which were stolen and then used to make free long distance phone calls. Thanks to the codez, I was able to maintain an active, nationwide presence on various BBSes. I became sort of addicted to codes, which normally did not last long because you shared all your codes with your online buddies, who would use them so much that the long distance service provider (I preferred Sprint) would get wise and shut them down a day and a half later. [6]

The incentives were similar to those of the world of science as well, where original published research brought reputations and rewards. Innovators who become famous (or infamous) are more likely to be invited to join prestigious groups, be invited to hacker or phreaker gatherings and parties, and be adored by the next generation of innovators.

Early hackers and phreakers tended to gather together in groups based around particular BBSes, with group membership based on prestige. These groups became the social filters, the source of many of the published electronic magazines, and the unofficial research institutions of the underground world. They also occasionally acted like the teenage boys they often were, engaging in "wars," with various groups hacking each other's computers and trying to outdo the other's feats. One of the most famous of these wars, between the Legion of Doom and the Masters of Deception, ended up with a federal crackdown and substantial jail time for the people involved.

In the BBS world, all community-building was very direct, whether among individuals or groups. Many BBSs carried some philes, but the "best" BBSs for hackers and phreakers were underground, and required a user to prove his or her worth before being given access. This was done either by sharing new, original philes or by convincing some more senior member of the community of the worth of the applicant. Getting access to the deeper levels of the community was a relatively slow process, acting as a further filter on new members to the community. Information depended on building community connections. BBSes were intensely local, as they were reached by dial-up connection, resulting in a hierarchical system where the best regional user innovators were filtered through the best regional BBSes, leaving a small, elite community at the national level.

Community-building and information-sharing were thus intimately connected.

The Internet and Community

BBSes were in the upswing of an exponential growth curve until 1993. Not coincidentally, 1993 was the year that NCSA Mosaic, the first browser was launched, and the World Wide Web was born. The fading phreaker community and burgeoning hacker community took naturally to this new medium. In addition to these existing underground underground communities, the accessibility of the Internet would bring together new types of underground communities due to the greater ease of communication over the old BBSes.

Not surprisingly, hackers, whose interest in computer networks predisposed them to an interest in such matters, used the full range of communications options made available over the Internet. Originally, they simply echoed some of the original infrastructure of the familiar BBSes, using mailing lists, FTP sites, and newsgroups to continue the sorts of discussion and file-trading originally conducted through dial-up modems. The nature of the Internet as a less local and therefore broader medium soon began to have an effect on the original underground communities.

Where previously hacker and phreaker groups were relatively local (The "414" which broke into Sloan-Kettering and Los Alamos took their name from the Milwaukee area code), the Internet opened the doors wider. Ironically, information was almost too free – it was too easy to get philes and too easy to enter the hacking world. One hacker describes it as follows:

> The Internet made everything that was once so hard to obtain so easy. IRC, email, ftp and webpages all open to Joe public. And in 1994 they flooded in, drove after drove causing great despair among the many old schoolers. Many of these people didn't appreciate their turf being overrun by these so-called lamers, so they closed their doors. While the old doors closed new doors opened, newsgroups, top100 web pages, anonymous ftp and the most infamous of all IRC offer channels. [7]

With barriers to information lowered, a lack of localization that made progress slow, and with the lack of mentor figures of older BBS members, the result was a partial dispersion of the hacker community. A few of the world-class innovators became the "elite," and they had a new audience, the "kiddies" who took techniques developed by elites and used them for their own purposes without creating anything new.

Elites, Kiddies, and Motivations

Since the development of the internet, many underground technical communities show a separation between two key groups: the "Elite" and the "Kiddie." Elite is a term used within underground communities, dating from at least the late 1970s, for those who truly innovate – the wizards who understand the proprietary system and constantly cause it to do things its makers never intended. Kiddie is a more recent descriptor, short for "script kiddie," meaning one who does not truly understand a system, but merely uses tools created by the Elites in order to exploit the system in their own way.

At first this might seem like a natural divide between experts who develop products and users who consume them, the difference between mechanics and those who drive cars. The Elite-Kiddie separation is more complicated, however. In a world where the heroes are essentially lauded for their intellectual or engineering achievements, such as underground communities, Elite status comes from achievement, combining aspects of both expert and rock star for aspiring Kiddies. Elites jealously guard their status and personal reputation, and generally respect the status of other Elites, if fairly earned – though they often engage in elaborate, puerile "wars" about which particular innovator is better than the other, and denigrate the skills of their rivals. Their status generally comes from original work, not from pranks or thefts, indicating a scientific bent to their motivations.

Generally, Elites are not primarily interested in underground innovation for the sake of theft. The economics of Elitedom just do not make rational sense and most pirate innovators do not really need the benefits that they acquire through underground innovation. A majority of Elite underground innovators live at home or in college dorms, supported by their parents. If they do not, these innovators usually have normal day jobs, and play the role of hacker during their time off. Underground innovation, no matter how seriously it is taken, is a hobby. This has some advantages over a traditional corporate approach to innovation, where risk and reward must be carefully balanced. Underground innovators face no such restraint, which is precisely why they can spend so much time attempting to perform unremunerated tasks, like spending hundreds of hours trying to guess the password of a computer system.

The lack of financial motivation is further evidenced by the fact that Elites do not seem to change their spending patterns for the technology upon which they innovate. Elite phreakers do not substantially change their paid phone use as a result of phreaking, nor do TiVo hackers use modifications that allow them to not pay monthly fees to TiVo. The time and effort required to innovate far outweighs the actual value of the goods or services available, bringing underground user innovation closer to a hobby than anything else. Additionally, Elites tend to freely share information, destroying the potential for profit from their discoveries, and also often encouraging manufacturers to close exploits found by Elites.

Theft is not the key motivation for Elites. A personal sense of exploration, however, is. Exploration is different from creation, involving finding interesting facts about existing systems, rather than creating systems themselves. Underground innovators generally do not like creating as much as they like discovering, and the type of discovery that drives them most is discoveries within existing systems, preferably laced with a bit of danger and exhilaration – exploration in an almost Victorian sense. Elite

underground innovators are aware of their own motivation. As Dildog, a well-known hacker who was part of the Cult of the Dead Cow hacking group, told the author, "I'm a synthesis addict. I like to find things, and the reward is worth the hunt. Sometimes, I will spend an extra few minutes randomly poking at stuff just because there is the possibility of discovering – just searching and finding." [8]

Variations of the central exploration theme abound. For example, Control-C, a notorious phreak and hacker who worked for Michigan Bell after being caught by the Secret Service, defined hackers in terms of learning:

> The purpose of hacking is to learn. Learn the way a computer system runs. Learn how the telephone switching systems work. Learn how a packet switching network works. It's not to destroy things or make other peoples lives a mess by deleting all the work they did for the past week. The reason the Department of Justice has crackdowns on computer hackers is because so many of them are destructive. That's just stupid criminal behavior and I hope they all get busted. They shouldn't be around. You give real hackers a bad name. [9]

Desire to discover the beauty in complex systems is another common reason given by Elites, as a 17-year-old phreak just starting in 1997 stated:

> The reason I'm interested isn't for getting free phone calls or the sense of power you get from being able to outsmart a big corporation. It's mainly because there's so much knowledge just hidden from you, knowledge that you would never think to look for. There's beauty in the way things work. We're just blinded to it by the fact people don't want to tell us. [10]

Even groups whose underground innovation serves no purpose other than destruction, like computer virus writers, most often do not set the virii free, instead viewing creating them as a challenge, a way of discovering new ways to make a system perform in unexpected ways. [11]

The joy of discovery is common even among underground innovators that have become legitimized, like those who modify computer games, known as "modders". In informal surveys, modders overwhelmingly discussed the fun of what they were doing as a primary motivation:

> I like to mod things, I feel that my mod that is under way will give great joy to myself and others. I probably won't work with games in the future, but who the heck knows. Conclusion, I'm doing it because it's fun.
>
> The reason I mod things is to make the game more enjoyable. I do it mainly for my own pleasure, but sharing it with the rest of the community for others to enjoy too comes alongside naturally.

For pirate communities, this sense of the thrill of exploration is often further enhanced by the perceived danger of being a pirate, and in the sense of power that hacking into a secure system provides. Especially given that many pirate underground innovators are in their mid-teens to early twenties, the joy of pirate innovators goes beyond the usual thrill of innovation in more mature communities, and is at least partially an attempt to rebel or stand out in some way. Perhaps this is because the infamy one can achieve as a hacker or phreaker is unavailable to its members outside the community, where underground innovators' technical skills have less social impact. Pirate innovators thus often see themselves as pioneers, fighting against the oppressive powers that control the electronic frontiers. This sort of perspective tends to lead to almost megalomaniacal statements, like those of "The Mentor": "Yes, I am a criminal. My crime is that of curiosity. My crime is that of judging people by what they say and think, not what they look like. My crime is that of outsmarting you, something that you will never forgive me for." [12] This sort of bombast is very common among younger underground, pirate Elites, and is probably a contributing factor for why many firms dismiss pirate innovators as disaffected teenagers out to vandalize, rather than as serious innovators.

If curiosity is one of the prime motivations of Elites, it is not the only one. Like open-source programmers, many Elites are indeed interested in recognition they receive from others in their communities. This search for recognition as one of the best provides a reward for innovation, just as it does in the open source movement discussed by Raymond and in experiments by Fisher and Ackerman. [13] The elaborate citation methods used in philes have already been discussed, and underground communities are extremely serious about playing up this perceived importance. This announcement by a game cracking group offers an example of how underground communities recognize achievement, "Once in a great while NTA extends a very exclusive invitation …. With that we honor the following traders & extend this rare invitation to the oldest and most respected, of Elite Groups on the Scene. [The right to use a /=RiSc= after a hackers name] denotes and carries unequaled distinction among our community and deserves the highest respect that it carries!" [14]

Emphasizing the importance of credit is perhaps my favorite quote from a piece of pirated material, in which Tyranny, a pirate who mods computers games so that they can be copied, complains about his trademark being stolen by another pirating group, Napalm:

> At the bottom of their current NFO [A file taking credit for a particular pirated piece of software] there is a line stating Uncopyright (u) Napalm '96. Wow… That line has been my personal trademark for a very long time now, and I do not appreciate upstart newbie groups using it without my consent. Now this may not seem a big deal to many of you, but I seriously cannot think of a dumber thing to do than "pirate" someone else's line. [15]

Credit serves as both a reward in itself and as a way of separating oneself from the vast majority of the underground innovation community, the Kiddies. Kiddies provide a much larger group, with a much wider spread of possible motivations. Some are pure vandals, while others are aspiring Elites. Dildog described the motivation of these Elites-in-training:

> Driven by a sense of awe, they are generally people who discovered the hacker the community before they discovered the art of hacking, and are in the community long before they deserve to be. As they are underdogs, they have to pick up the pieces because they are not as cool as a big hacker. Every good hacker had to be a Kiddie first because that it what research is. [8]

These Kiddies are responsible for the vast majority of hacking damage, usually as a side effect of their relative inexperience. They are also more likely to be caught, and more likely to serve as examples of the nature of the parasite community.

The situation is more complicated than this Elites vs. Kiddies divide would indicate, however. Elites use the Kiddie community for their own purposes, allowing them to actually use the techniques created by the Elites in order to gain more attention to the Elite's work. Thus, writers of computer viruses will almost never themselves release a virus, but will post the code for one online, where Kiddies will often find it and set it free. Similarly, Elite hackers will often create a software package exploiting security flaws, and then make the software available for any Kiddie to use. This absolves the Elites of direct guilt, but still insures that their "beautiful discoveries" will become known to the world. Elites seem to not see this as making them in any part responsible for the crimes of Kiddies, often citing free speech as a reason for posting instructions for exploiting their discoveries.

Elites and communities, and the interactions between them, provides the engine through which most underground communities work. The constant drive for recognition, and the rewards for discovery, push the best innovators into the Elite rankings. Kiddies, on the other hand, form both the basis of the Elite fan base, and a way for them to enact their discoveries without taking personal blame.

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