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The History of Dangerous and Endangered Substances in the 19th and 20th Centuries

Pharmacovigilance and Post-Black Market Surveillance

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Joshua Robbins spent the last minutes of his life screaming “I don’t want to die! This is stupid!” In the hours preceding his death on April 1st, 2001, the seventeen-year-old teenager from Memphis, Tennessee, had ingested a tablet of MDMA (Ecstasy), a few capsules of nitrous oxide (laughing gas), an ephedrine wafer, and ultimately 35 mg of a new ‘designer drug’ known as 2C-T-7. This last substance was a psychoactive research chemical legally obtained through the Internet from JFL Primary Materials, Inc. In the experimental drug scene that Joshua was part of it was praised for its mellow and sparkling hallucinogenic qualities. However, it was in response to this drug that Joshua began to feel like burning up inside throwing himself into the wall while screaming and yelling at the top of his lungs. By the time his friends took him to a local hospital his body was already stiff. It was the second 2C-T-7 related death since this novel compound had entered the grey market (Boal 2002; Erowid 2001).

This article examines responses to the problem of such unexpected side effects occurring after a drug has left the confines of the laboratory circulating in a larger population. On the market for regulated pharmaceuticals, the set of practices monitoring this kind of ‘collective experimentation’ (Latour 2001) is known as pharmacovigilance. Pharmacovigilance aims at the detection, understanding, and quantitative assessment of the risks related to the use of drugs and consequential adverse effects outside of medically supervised clinical trials. In its report ‘The Importance of Pharmacovigilance’ (2002), the World Health Organization (WHO) traces the development of these practices back to the thalidomide disaster in 1961 and the subsequent international efforts to address drug safety issues.¹ In this broader understanding of the term, pharmacovigilance refers to any kind of attention that is being paid to adverse drug reactions. However, the term is also used in a more limited way referring exclusively to practices of so-called postmarket surveillance, i.e., the monitoring of unforeseen adverse drug reactions manifesting after a new drug has entered the marketplace. In the course of the latest developments in the history of pharmaceuticals, this kind of pharmacovigilance has recently gained a new significance.

I will briefly outline how pharmacovigilance has emerged in national and international regulatory systems to deal with unexpected side effects of officially licensed substances before shifting attention to how this problem is addressed in the ‘designer-drug underground.’ Here, novel synthetic compounds and unknown psychoactive plant extracts are constantly being introduced to the grey and black markets without having undergone rigorous preclinical testing. The black market is subject to police interventions, but it is excluded from the states’ regulatory structures promoting drug safety. However, the experimental drug scene developing and researching novel mind-altering agents has established its own mechanisms of dealing with

¹ Whether this origin story will stand up to historical scrutiny remains to be seen. Philip Routledge Routledge, Philip (1998) ‘150 Years of Pharmacovigilance’, *The Lancet* /351: 1200-01. identifies a “forerunner of a spontaneous reporting system for suspected adverse drug reactions” in mid nineteenth century Britain. Kees van Grootheest’s brief history of pharmacovigilance Grootheest, Kees van (2003) ‘The Dawn of Pharmacovigilance. An Historical Perspective’, *International Journal of Pharmaceutical Medicine* 17/5-6: 195-200. suggests that already in the eighteenth century attention was paid to adverse drug reactions. From his point of view, the thalidomide incident only led to a systematization of the surveillance of pharmacological side effects. The “Pharmacovigilance Timeline” of the West Midlands Centre for Adverse Drug Reaction Reporting in the UK even goes back to the Babylonian Code of Hamurabi in 1780 BC. From a nominalist perspective these attempts of backdating seem questionable. Whether one likes to speak of pharmacovigilance *avant la lettre* or not, the observation of adverse drug reactions has undergone significant transformations in the recent past.

unexpected side effects and untoward incidents. Like the American Food and Drug Administration (FDA), the European Medicines Evaluation Agency (EMA) and the World Health Organization (WHO), the independently managed, not-for-profit website Erowid (www.erowid.org) collects and processes data on adverse drug reactions—not of prescription medicines, but of mostly unlicensed psychoactive compounds. This requires a corresponding ethos of vigilance among the self-experimenting drug users frequenting and contributing to this website. By employing the approach of functional analysis (Luhmann 1984), I draw an analogy between postmarket surveillance of licensed drugs and what I will refer to as ‘post-black market surveillance’ of unauthorized and illicit pharmacological agents.²

This analogy serves to render visible how the genealogically distinct top-down implementation of pharmacovigilance and the bottom-up emergence of post-black market surveillance driven by politically antagonistic forces generate functionally equivalent responses to the problem of drug safety in the shared matrix of ‘advanced liberalism’ (Rose 1999). Contributing to a broader discussion of the political rationality of security, the article examines the dispersal of vigilance as a key element in the governance of societies conceiving of themselves as producing incalculable risks that require continuous preparation for the unexpected.³

The Emergence of Pharmacovigilance

Until the beginning of the twentieth century, states showed little interest in what their citizens ingested. Since then, however, they have begun to regulate the hitherto uncontrolled commerce in foods and drugs. In the United States, for example, the FDA has come to serve as gatekeeper to the market (Daemmrich 2004; Hiltz 2003; Marks 1997). Especially after the thalidomide disaster in 1961, the hurdles of premarket testing got higher. This provoked opposition: Pharmaceutical industry accused the FDA of hampering its business interests (Daemmrich 2004). In the 1980s, these attacks on the regulatory system gained momentum with the emergence of the AIDS movement. Some of the very patients whom the FDA was meant to protect now accused it of withholding life-saving medications from them for too long. Unwilling to bear with the delays caused by the FDA’s due process, AIDS activists and allied scientists began to organize community-based therapeutic trials and underground tests of new unlicensed drugs in so-called guerrilla clinics (Daemmrich 2004-103; Epstein 1996; Marks 1997). In the anti-statist Reagan and Bush administrations the alliance of industry and AIDS activists found ready listeners.

The subsequent period of deregulation in the late 1980s and early 1990s resulted in a loss of drug safety, which had to be compensated for. At least in principle, a tightening of pharmacovigilance served as a response to this problem: In order to make up for the less rigid premarket tests, doctors and patients as well as regulatory agencies and drug companies had to become more attentive to adverse drug reactions arising after a new drug had entered the marketplace and the clinic. This development can be described as a shift in drug safety from prevention (in the strict sense) to vigilance.

The calls for increased watchfulness have been given shape through a number of new practices, tools, and institutions ranging from drug safety databases and data mining algorithms to new legal provisions and the establishment of the WHO’s Uppsala Monitoring Centre

² To be precise it would have to be called “post-grey and black market surveillance” as not all unlicensed substances are automatically illegal.

³ The German sociologist Ulrich Beck (1992) *Risk Society. Towards a New Modernity* (London: Sage Publications) has coined the term “risk society” to describe late modern societies characterized by the incalculability of the risks they produce. Beck, however, takes this potentiation of risks as a given instead of making the underlying self-perception of so-called risk societies the object of his social scientific analysis. Lemke, Thomas (2007) *Gouvernementalität und Biopolitik* (Wiesbaden: VS Verlag für Sozialwissenschaften).

collecting and processing adverse drug reaction reports in order to detect early signals of potential drug hazards. This apparatus is still expanding and the WHO called for an extension of pharmacovigilance to newly emerging safety concerns (World Health Organization 2002). Among those new kinds of safety concerns listed are the illegal sale of medicines and drugs of abuse over the Internet and the spread of self-medication practices. The website Erowid (www.erowid.org) can be regarded as a grassroots response to these concerns.

Erowid or Post-Black Market Surveillance

Erowid was founded in California in 1995 by two people calling themselves Earth and Fire and is now being run by three persons as well as dozens of volunteers (Erowid 2005). It is a non-commercial organization that has set up an online library providing information about psychoactive plants, chemicals, and related topics. Its more than 30.000 documents range from images, research summaries and abstracts, media articles, experience reports, information on chemistry, dosage, effects, law, health, and drug testing to traditional and spiritual uses of psychoactive compounds. The sources of information Erowid gives access to are diverse spanning from peer reviewed research publications to subjective experience reports by anonymous drug users (critically reviewed and edited by the Erowid team) to fiction. Erowid emphasizes that these documents represent multiple viewpoints and conflicting opinions and facts in order “to highlight specific areas of conflict.” The perspectives published on different drugs are positive, neutral, and negative alike. In its mission statement, Erowid stresses differentiation and advocates responsible individual choice: “People are not trained or educated to make informed, rational decisions around managing their own consciousness. [...] We believe it is key that people learn to differentiate between different psychoactives based on rational, articulable characteristics, and to understand the uses and risks associated with these substances.” An activist role is decidedly rejected:

The mission of Erowid is explicitly academic and we work to avoid becoming involved in specific legislative or political issues except to comment on factual matters touched on by these issues. While we believe that our work has harm reductive effects in the long term, harm-minimization is not the primary consideration we make when choosing what and how to publish. Erowid is a library. We believe that the creation of this nonpolitical library has desirable effects and is its own political statement. (Erowid 2003)

These statements already indicate the core problem raised by the existence of Erowid: the relationship between information on and consumption of psychoactive substances. In the early 1990s, the emergence of the Internet brought about a number of simple underground mailing lists and Internet newsgroups distributing information on psychoactive, especially psychedelic drugs (Edmond 1997; cf. Halpern and Pope 2001; Wax 2002). Simultaneously, new types of ‘recreational drugs’—many of them classified as psychedelics—became available and their consumption increased. Even though different factors have contributed to this phenomenon, the easier accessibility of information on these substances (including instructions on where to find them or how to synthesize them) has contributed significantly to their dissemination.⁴ Since many of these drugs were new (‘designer drugs’) and their effects on humans not well understood yet, the occasional occurrence of dangerous adverse effects was inevitable. Critics of

⁴ Access to the drugs themselves has also been increased through the Internet as they can be ordered online. Thereby, even brand new or rather exotic substances can be purchased in remote areas without an avantgarde experimental drug scene Schiavone, Sergio (2002) ‘[Illicit market of controlled drugs in Italy: new drugs and trends]’, *Annali dell’Istituto superiore di sanità* 38/3: 315-18.. As to the problem of online sales of pharmaceuticals more generally, see Arrunda Arrunada, B. (2004) ‘Quality safeguards and regulation of online pharmacies’, *Health Economy* 13/4: 329-44. and St. George, Emmanuel and Middleton St. George, B. N., Emmanuel, J. R. and Middleton, K. L. (2004) ‘Overseas-based online pharmacies: a source of supply for illicit drug users?’ *The Medical Journal of Australia* 180/3: 118-19.

Erowid claim that the information presented on the website arouses curiosity and encourages experimentation with illicit drugs, especially among adolescents. They also complain "that the U.S. government, despite extensive and costly efforts, currently does not provide effective alternative sources of information about drugs on the Web, where partisan sites [such as Erowid] still get the attention of both search engines and users." (Boyer, Shannon and Hibberd 2001; cf. Davis 2004)⁵ Despite his fierce criticism of Erowid (voiced in *The New England Journal of Medicine*), the pediatrician Edward Boyer has to admit: "Every physician I know, every law enforcement person I know who wants to find out the very latest in drugs goes to Erowid." (quoted from: CBS Broadcasting 2003) Thus the information on new illicit substances provided on the Internet itself seems to work as a genuine *pharmakon* serving as both poison and remedy: It promotes risk-taking behavior, but it also enables drug users to take these risks in a more calculated and responsible manner as well as physicians to treat these users more effectively in the case of severe adverse reactions (Wax 2002).

Erowid can be interpreted as an assemblage exercising pharmacovigilance in a field that has been excluded from the regulatory regime established by the state. The gradual illegalization of most drugs without acknowledged medical applications (alcohol, tobacco, and coffee being the most prominent exceptions) during the twentieth century recreated an uncontrolled drug market. While the FDA evolved as an efficient instrument to standardize manufacture and sale of food and drugs in the corporate world, which depends on licenses, seals of quality, etc., the tightening of regulations also gave birth to a seemingly wild and unregulated zone of collective experimentation. As its law-abiding counterpart, although at a much slower rate, this sector of clandestine pharmaceuticals continuously introduces new (or reintroduces old) drugs to the market. As Philip Jenkins points out, every three to four years a new emerging 'drug epidemic' is diagnosed by the Drug Enforcement Agency (DEA) and the media calling for action (Jenkins 1999). By the mid 1980s, a number of synthetic drugs had already entered the marketplace in waves (methamphetamine, PCP, fentanyl, MDMA). Manufacturers circumvented prohibitive laws by modifying the molecular make-up of their drugs producing substances with effects similar to those of their predecessors, but not covered by drug legislation. The law always lagged behind. In 1986, the Reagan administration responded to the challenge of such 'designer drugs' (a term coined around 1980 to designate new synthetic substances serving as 'drugs of abuse' (Jenkins 1999)) by establishing a more supple, but highly restrictive legal framework: the Controlled Substance Analogue Enforcement Act. Instead of explicitly listing all substances declared illegal, the so-called Analogs Act anticipated the development of new drugs replacing those prohibited. As administrators were unable to keep up with the flow of new inventions they preemptively illegalized all substances 'substantially similar' in structure or action to a controlled substance (Eisner 1989). On the not yet regulated grey market and the black market created by illegalization, Erowid operates as a pharmacovigilance mechanism. Analogous to the WHO's Uppsala Monitoring Centre or the FDA's MedWatch, Erowid—among other things—collects and processes data on adverse drug reactions. This kind of 'consumer intelligence' is based on experience reports sent in by the drug users themselves instead of being mediated by physicians—a strategy also practiced by regulatory agencies since the mid-1980s (Daemrich 2004).⁶ Erowid has extended "the scope of pharmacovigilance [...] beyond the strict confines of detecting new signals of safety concerns" on the legal drug market (as suggested by the WHO) by facilitating a regime of 'postmarket' or rather 'post-black market surveillance' within the (virtual) community of experimental drug users.

⁵ The information provided on the website of the Drug Enforcement Agency (www.usdoj.gov:80/dea) on drugs such as 2C-T-7 or 2C-T-2, for instance, is scarce. Walt Disney's antidrug website www.freevibe.com designed to reach teenagers in particular has no entries on these substances.

⁶ For a related approach to collect experience reports directly from patients, see Medawar, Herxheimer, Bell and Joffre Medawar, Charles, Herxheimer, Andrew, Bell, Andrew and Joffre, Shelley (2002) 'Paroxetine, Panorama and user reporting of ADRs: Consumer intelligence matters in clinical practice and post-marketing drug surveillance', *International Journal of Risk & Safety in Medicine* 15: 161–69.

Pharmacovigilance as a Mode of Subjectivity

However, as there are no preclinical or clinical trials for drugs newly developed in the underground, the boundary between premarket testing and postmarket surveillance is blurred. What might count as a rough functional equivalent to exploratory premarket testing though is the controlled and cautious self-experimentation of Alexander Shulgin. In a private lab on his farm in Lafayette, California, he invented nearly 200 new psychoactive, mostly psychedelic substances testing each of them on himself. The books *PIHKAL* and *TIHKAL*, which Shulgin wrote with his wife Ann, offer a close-up view on the fine-grained, highly observant attention to drug effects necessary to survive decades of self-experimentation with entirely novel compounds (Shulgin and Shulgin 1991; Shulgin and Shulgin 1997). He explains his reliance on self-experiments by pointing out that the psychedelic potential of a compound cannot be determined by way of animal testing. Usually, he begins to ingest a new substance at a dose 10 to 50 times less than the known active level of its closest analog. He is well aware of the risk, which he is taking despite his careful approach:

There is no completely safe procedure. Different lines of reasoning may lead to different predictions of a dosage level likely to be inactive in man. A prudent researcher begins his exploration at the lowest level of these. However, there is always the question, "Yes, but what if—?" One can argue AFTER the fact that—in chemist's jargon—the ethyl group increased the potency over the methyl group because of lipophilicity, or decreased the potency because of ineffective enzymatic demethylation. My decisions, therefore, have had to be a mixture of intuition and probabilities. (Shulgin and Shulgin 1991)

Shulgin practices a form of vigilance that serves to anticipate and avoid more serious adverse reactions before they occur at higher dosages. Having lived an 'experimental life' par excellence, Shulgin has developed a 'prepared mind' merging the preparation for scientific discoveries with the preparation for the early detection of severe side effects of new drugs. In his self-experimentation, Shulgin has learned to exercise pharmacovigilance (understood as a relationship to oneself and the world) on a daily level.

Against the background of contemporary psychopharmacology, which has come to be dominated by randomized clinical trials, Shulgin's experimental practice almost seems anachronistic. Like the gentleman scientists in seventeenth-century England described by Steven Shapin he conducts his experiments at home, in solitude or with only his wife and friends present, providing detailed reports of these most private experiences instead of applying standardized psychometric measurements (Shapin 1999). In the course of the twentieth century, self-experimentation and introspection (unless it comes in the form of self-rating scales) have lost their methodological legitimacy. There has been a shift from trust in experienced individual scientists to the randomized controlled trials and from anecdotal evidence to statistical analysis. From this perspective, the validity of experience reports produced in this curious kind of 'preclinical testing' is limited. The effects and side effects of a new 'designer drug' can only be assessed more fully when it is already distributed on the grey or black market being experimented with by a wider population. Here, its consumption does not take place under controlled conditions. This puts users at a serious risk.

The psychedelic 2C-T-7, for example, another one of Alexander Shulgin's creations already mentioned in the introduction, caused three deaths in 2000 and 2001. A freelance drug researcher going by the screen-name 'Murple' conducted an e-mail survey on Erowid collecting data on side effects, dosage, experiences, etc., from 423 people. He or she also used Erowid to publish the results of this study in 2001. Analyzing the cautious self-observations of those who had responded to his survey Murple reached the conclusion that 2C-T-7 as well as its sibling 2C-T-2 have great potential as tools for therapy promoting "very insightful states of mind" and as "spiritual tools, enabling easier access to meditative states." But Murple also warned that

[a]long with the potential for benefit, both drugs also present potential risks. This seems especially true for 2C-T-7 [... But] [u]sed in moderation, both drugs seem to be quite safe. While there have been several serious incidents reported, we need to remember that this represents only a tiny fraction of total uses. There have been fewer than ten incidents of concern, out of thousands of total uses. This record looks even better when considering some of the reckless dosages taken by many people.

The biggest risk of course is that the risk factors are not really known. Until more research is done, it would be wise to proceed carefully. (Murple 2001; cf. Platoni 2002)

By facilitating such post-black market surveillance that integrates a multitude of watchful self-observations Erowid elevates the subjective mode of pharmacovigilance acquired by Shulgin and other members of the experimental drug scene to a collective and pharmacologically more significant level.⁷ Of course, such informal studies do not conform to the methodological standards of expensive large-scale post-launch safety surveillance studies. The substances are not taken under medical supervision and the voluntarily submitted consumer reports are not validated by a physician. And, statistically, their quantitative assessment is less refined than their elaborate mathematical analysis in the official pharmacovigilance system. But under the modest conditions of research on the fringes of psychopharmacology the assemblage of alert self-experimenters, a website posting surveys and collecting experience reports, and underground drug researchers analyzing this data fulfills a function analogous to that of the pharmacovigilance apparatus in the licit sphere.

Vigilance and the Modest Governance of a Complex World

Vigilance has recently become a key element of different security apparatuses that are meant to protect populations from terrorism, biohazards, natural catastrophes, and drugs. In his 1977/78 lecture series *Security, Territory, and Population*, Michel Foucault outlined the concept of security in opposition to discipline and law. The law constitutes a purely negative form of normativity, which prohibits certain acts on a certain territory, e.g., the manufacture and sale of particular drugs in the United States or Britain, for example. Discipline ideally aims at a continuous panoptic observation of individuals responding even to minute deviations from a norm by disciplinary measures. Close monitoring of all people having to do with illicit substances can serve as an example: Drug scenes are infiltrated by undercover narcotics officers; dealers are prosecuted; potential consumers are tested for drug use; pharmaceutical companies and scientists are granted revocable licenses for handling and/or producing certain substances while being subject to regular supervision. However, total control of all citizens has remained a totalitarian utopia. Despite the establishment of a massive juridico-disciplinary apparatus the 'War on Drugs' has failed to effectively repress drug trafficking and consumption in the United States (in fact, cocaine prices declined continuously during the 1980s indicating a growing availability of the drug). As neither proscriptions nor the surveillance of individuals guarantees the desired outcomes, a third strategy has been developed. The emergence of security as a form of government can be interpreted as a response to the limits of legal and disciplinary instruments. Here, the aim of total control is replaced by the modulation of a pre-existing milieu in order to regulate a population at large. While discipline is based on sustained interventions security adopts—at least to a certain extent—a *laissez faire* attitude only intervening as a last resort and after observation and evaluation of the specific tendencies of a given situation (Foucault 2007).

⁷ Erowid's policy concerning the publication of experience reports is a compromise between providing an open forum and a grass roots version of a peer review system exercising a "robust triage" for submissions Erowid, Earth and Erowid, Fire (2006) 'The Value of Experience. Erowid's Collection of First-Person Psychoactive Reports', *Erowid Extracts* 10 (June): 14-19.

Vigilance cannot be exercised effectively in a top-down manner only. In the role of a panoptic observer, the state would be overstrained. After the terror attacks on the public transport system in London in 2005, for example, the BBC repeatedly asked British citizens to be 'vigilant' and to report any suspicious activity or items to the police. In order to work vigilance requires the cooperation of the citizenry, i.e. a self-observation of and by the population (and even when helped by the population the police had to work at the very limit of its capacities to follow up every hint). This, in turn, requires the formation of vigilance as a mode of subjectivity, which is inseparable from the formation of individual responsibility.

One important way of reaching this goal is the distribution of information—be it police portraits or basic medical and pharmacological knowledge, which allows consumers of new drugs to recognize, evaluate, and report unexpected side effects. This is the strategy pursued by Erowid: The website provides a detailed account of the effects of a wide range of psychoactive substances based on scientific literature as well as experience reports. To prevent the reader from acquiring a false sense of safety, information on every drug is accompanied by the following warning: "Every individual reacts differently to every chemical. Know your Body—Know your Mind—Know your Substance—Know your Source. Erowid's dosage information is a summary of data gathered from users, research, and other resources and should not be construed as recommendations. Individuals can respond differently to the same dosage. What is safe for one can be deadly for another." (see, for example, Erowid 2007)

Teaching drug users how to minimize the hazardousness of their behavior has been the cornerstone of harm reduction, an approach which emerged in the early 1980s mostly as a result of the AIDS epidemic. As intravenous drug use could not be eliminated altogether members of risk groups had to be educated about the infection risk associated with needle sharing and clean syringes had to be distributed to allow users to also act on this knowledge. In this particular context, the state accepts that illicit drugs are taken and tries to reduce the harm they cause. Since the late 1980s and early 1990s, private organizations such as Eve & Rave (Switzerland/Germany), Dance Safe (USA), or Médecins du Monde (France) as well as governmental initiatives in the Netherlands, Switzerland, and Austria, have established so-called drug-checking laboratories where users can have the quality and dosage of their illegal drugs tested (Cousto 2002).⁸ As products of poor quality are quickly identified and abandoned within the scene it improves the quality of the drugs traded (for better or worse). This enables recreational drug users to make more informed and responsible decisions about the drugs they consume.

Especially, in the context of 'club drugs' (e.g., Ecstasy) the Internet—including websites such as Erowid—has come to play an important role in promoting a more responsible use of illicit substances. When I liken Erowid to technologies of pharmacovigilance rather than harm reduction this is not to deny that Erowid fulfills the latter function as well (Murguía, Tackett-Gibson and Willard 2006). After all, harm reduction and pharmacovigilance operate in the same governmental matrix, which Foucault described as the security apparatus. Both presuppose that in a population the consumption of precarious substances (licit and illicit alike) cannot be prevented entirely by juridical and disciplinary technologies. But harm reduction focuses on known problems while pharmacovigilance aims at detecting and responding to unforeseen difficulties.

This requires not only a responsible, but also a highly proactive type of drug user. She will approach a new drug cautiously and report back any untoward events to a website such as Erowid to inform future users of the drug about potential risks. Vigilance is based on such an exchange between vigilant individuals and centralized organizations, which collect, process, and distribute information—returning the results of their analyses to the watchful citizenry, which originally provided the raw data. But, in this case, information does not only serve to spread

⁸ Different scenarios outlining different futures of drug policy are discussed in the Foresight report *Drugs Futures 2025?* (2005) (London: Office of Science and Technology). commissioned by the British government.

knowledge, but also to raise awareness. Such dissemination of vigilance in a population is an element in a strategy of governing a world too complex for legal and disciplinary measures alone. As a whole an alert population can observe more than the most hypertrophied police state. The abundance of information registered is counterbalanced by moderation on the level of intervention. Reacting to every single clue would bind too many capacities.

The Limits of Vigilance

However, there is a limit to vigilance. Attention is a scarce resource, too. It has to be focused. Paying attention to too many things at a time results in excessive demands on the observer. When being prescribed a new antibiotic, most consumers do not have enough time and knowledge to conduct the kind of research scientifically literate members of the experimental drug scene engage in when trying out a new substance. Most patients need to trust their doctor, who, in turn, needs to trust national and supranational regulatory bodies. Trust is a key element of an economy of attention. As Niklas Luhmann has argued, trust serves as a strategy of dealing with complexity (Luhmann 2000). But the relationship between trust and vigilance is antagonistic: While the former eases the burden of attention the latter requires to cultivate a circumspect distrust maintaining a high level of alertness at all times.

Since the 1990s, two major drug scandals involving SSRI antidepressants and the anti-inflammatory Vioxx have undermined trust in the official drug safety system. The FDA responded with an ambiguous strategy: It tightened both premarket testing and postmarket surveillance to restore trust in medicines. At the same time, it undermined this restoration of trust by issuing warnings concerning adverse drug reactions even if there was no clear evidence to avoid further blame. Its commissioner declared that the agency could no longer wait until risk information was proved but had to communicate its uncertainty to the public advising patients to speak to their equally ignorant doctors about questionable medications (Harris 2005).

In the cases of the experimental drug scene assembling around Erowid and Shulgin's creations or the desperate AIDS patients participating in underground drug trials in the 1980s, it is obvious who is taking responsibility: It is the consumers themselves who are willing to take the risk of ingesting drugs not well known. In the public medical system, the situation seems more controversial. While consumers, for the most part, have traditionally been regarded as medically and pharmacologically illiterate and immature, those producing, regulating, and prescribing drugs are passing the buck to each other. The problem is that neither administrators nor physicians or their patients know with any certainty what to expect from a new drug. By communicating their ignorance they give up authority, but they also free themselves of taking responsibility for the unforeseeable consequences of their actions and inaction alike. Assigning the management of an uncertain future to a multitude of actors is not only liberating, but also a serious strain for the individual subject.

Conclusion

Advanced liberalism is characterized by the dissemination of responsibility. The state has come to delegate the management of many risks to individuals and collectives. It has not withdrawn from politics, but it 'governs at a distance' by redirecting its citizens' activities toward its own objectives (Rose 1999). The development of pharmacovigilance as a drug safety mechanism based on the dispersion of watchfulness among doctors and patients, companies and regulators shows the double-edgedness of this post-Enlightenment sense of maturity to which subjects are being brought up in many areas formerly shaped by the paternalism of the welfare state.

Erowid is not a direct outcome of advanced liberal government at a distance, but a genuine grassroots initiative that has come into existence despite, not because of US drug policy. Nevertheless, considering that it emerged at the height of the information technology boom in Silicon Valley receiving a significant part of its funding from people who made their money in

the computer and software industry it might well be regarded as an unforeseen effect of the dispersed forms of governance which the US government promotes. The entrepreneurial spirit and the 'new prudentialism' manifesting in this enterprise are forms of advanced liberal subjectivity diverted from its intended use. Even though the development of post-black market surveillance and the pharmacovigilance apparatus proper differ markedly from a genealogical point of view they fulfill analogous functions. Both are meant to compensate for limitations in premarket regulation. In the case of the official pharmaceutical market, the limits are not only due to the structural ignorance inherent in premarket testing. They are also the outcome of a politics of deregulation. The black market, on the other hand, has been excluded from drug safety regulations since the very beginning. As citizens were not supposed to ingest illegal substances there was no reason for the state to establish mechanisms managing the concomitant risks. In both fields, forms of postmarket surveillance have evolved that are meant to delimit the scope of adverse drug reactions provoked by novel substances already on sale. Hence, despite the antagonistic political forces at play the national and transnational pharmacovigilance apparatus and the underground drug safety project described in this article operate in a shared problem-space. Against the background of the analogy drawn in this article, we can understand how the rationality underlying pharmacovigilance has come to inform current technocratic deliberations and endeavors to establish a drug safety regime on the black market.