

INTERSPECIES COPRODUCTION IN THE PURSUIT OF RESISTANT ACTION

A project by Beatriz da Costa with Cina Hazegh and Kevin Ponto

“To Make People believe, is to make them act.” Michel de Certeau. /1/

PigeonBlog /2/ was a collaborative endeavor between homing pigeons, artists, engineers and pigeon fanciers engaged in a grassroots scientific data gathering initiative designed to collect and distribute information about air quality conditions to the general public. Pigeons carried custom-built miniature air pollution sensing devices enabled to send the collected localized information to an online server without delay. Pollution levels were visualized and plotted in real-time over Google’s mapping environment, thus allowing immediate access to the collected information to anyone with connection to the Internet.

PigeonBlog was an attempt to combine DIY electronics development with a grassroots scientific data gathering initiative, while simultaneously investigating the potentials of interspecies co-production in the pursuit of resistant action. /3/ How could animals help us in raising awareness to social injustice? Could their ability in performing tasks and activities that humans simply can’t be exploited in this manner, while maintaining a respectful relationship with the animals?

PigeonBlog was developed and implemented in the southern California region, which ranks among the top-ten most polluted regions in the country. PigeonBlog’s aim was 1) to re-invoke urgency around a topic that has serious health consequences, but lacks public action and commitment to change; 2) to broaden the notion of a citizen science while building bridges between scientific research agendas and activist oriented citizen concerns; and 3) to develop mutually positive work and play practices between situated human beings and other animals in technoscientific worlds.

When thinking of pigeons, people tend to think of the many species found in urban environments. Often referred to as “flying rats,” these birds and their impressive ability to adapt to urban landscapes isn’t always seen in a favorable light by their human co-habitants. At least by association then, PigeonBlog attempted to start a discussion about possible new forms of co-habitation in our changing urban ecologies and made visible an already existing world of human-pigeon interaction. At a time where species boundaries are being actively reconstructed on the molecular level, a re-investigation of human to non-human animal relationships is necessary.

PigeonBlog was inspired by a famous photograph of a pigeon carrying a camera around its neck taken at the turn of the twentieth century. This technology, developed by the German engineer Julius Neubronner for military applications, allowed photographs to be taken by pigeons while in flight. A small camera was set on a mechanical timer to take pictures periodically as pigeons flew over regions of interest. Currently on display in the Deutsche Museum in Munich, these cameras were functional, but never served their intended purpose of assisted spy technology during wartime. Nevertheless, this early example of using living animals as participants in early surveillance technology systems provoked the following questions: What would the twenty-first century version of this combination look like? What types of civilian and activist applications could it be used for?

Facilities emitting hazardous air pollutants are frequently sited in, or routed through, low-income and “minority” dominated neighborhoods, thereby putting the burden of related health and work problems on already disadvantaged sectors of the population who have the least means and legal recourse (particularly in the case of non-citizens) to defend themselves against this practice. Recent studies also revealed that air pollution levels in the Los Angeles and Riverside counties region are of high enough magnitude to directly affect children’s health and development. /4/

With homing pigeons serving as the “reporters” of current air pollution levels, PigeonBlog attempted to create a spectacle provocative enough to spark people’s imagination and interests in the types of action that could be taken in order to reverse this situation. Activists’ pursuits can often have a normalizing effect rather than one that inspires social change. Circulating information on “how bad things are” can easily be lost in our daily information overload. It seems that artists are in the perfect position to invent new ways in which information is conveyed and participation inspired. The pigeons became my communicative objects in this project and “collaborators” in the co-production of knowledge.

PigeonBlog also helped to provide entry into the health and environmental sciences. The largest government-led air pollution control agency in Southern California is the South Coast Air Quality Management District (AQMD), covering Orange County, and the urban areas of Riverside and Los Angeles Counties. Despite AQMD’s efforts, in addition to major air quality improvements achieved over the past thirty years, pollution levels in the region still surpass national regulatory health standards. In 2005 ozone levels exceeded the federal health standard for ozone eighty-four nearly one quarter of the calendar year.

Besides the actual numbers, it was the way in which air pollution measurements are currently conducted that the project hoped to address. The South Coast AQMD controls 34 monitoring stations in its responsible district. These are fixed stations at an approximate cost of tens of thousands of dollars per station. Each station collects a set of gases restricted to its immediate surroundings. Values in between these stations are calculated based on scientific interpellation models. Stations are generally positioned in quiet low-traffic areas, not near known pollution hotspots, such as power plants, refineries and highways. The rationale behind this strategy is to obtain representative values of the urban air shed as opposed to data “tainted” by local sources in the immediate surroundings.

PigeonBlog’s birds had the potential of validating these interpellation models. Not only were they collecting the actual information while “moving” around, but they were also flying at about 300ft altitude, an area that has proven difficult to assess through other means. Most flying targets are a source of pollution themselves. Airplanes in particular have this problem, as it is obviously quite dangerous to fly at such a low altitude.

Recent behavioral studies of pigeons revealed that in addition to the commonly accepted theory that pigeons orient themselves in relation to the Earth’s magnetic field, they also use visual markers such as highways and bigger streets for orientation. /5/ Flying about 300 feet above the ground pigeons are ideal candidates to help sense traffic related air pollution, and to validate pollution dispersion in those regions. Depending on the location of the initial release, the pigeons could also report on ground-level information at locations where AQMD sanctioned monitors were not available.

The pigeon “backpack” developed for this project consisted of a combined GPS (latitude, longitude, altitude) / GSM (cell phone tower communication) unit and corresponding antennas, a dual automotive CO/NOx pollution sensor, a temperature sensor, a Subscriber Identity Module (SIM) card interface, a microcontroller and standard supporting electronic components. Designed in this manner, we essentially ended up developing an open-platform Short Message Service (SMS) enabled cell phone, ready to be rebuilt and repurposed by anyone who is interested in doing so. While the development of the basic functionality of this device took us about three months, miniaturizing it to a comfortable pigeon size took us three times as long. After some initial discomfort, many revisions, “fitting sessions” and balance training in the loft, the birds seemed to take to the devices quite well and were able to fly short distances (up to twenty miles). The pigeons who worked with us on the project belonged to Bob Matsuyama, a pigeon fancier and middle school shop and science teacher, who became a main collaborator in the project. He volunteered his birds for PigeonBlog and helped the pigeons train and interact with us.

After many trials and test flights in southern California with Bob and his birds, we now felt ready to introduce the project to a larger audience. The pigeons flew at three occasions. Once as part of the Seminar in Experimental Critical Theory, an event sponsored by UC Irvine’s Humanities Research Institute. And twice as part of the Inter Society for Electronic Arts (ISEA) Festival in San Jose. All three of these events took place in August 2006 and the observing human audience members got a chance to interact with the birds and retrieve the collected pollution information. The birds who worked with us in San Jose belonged to a local San Jose pigeon fancier.

The reactions to PigeonBlog were diverse. While being embraced and applauded by many, there were also critical comments made by the People for the Ethical Treatment of Animals (PETA), who accused PigeonBlog of animal abuse and conducting non-scientifically grounded experiments. PETA’s campaign didn’t result in action beyond the public statement issued by the group, but it tainted the experience for a brief moment. Animal abuse was not “practiced” as part of the project, nor was animal rights a topic that the project was hoping to create public dialogue around. PigeonBlog was not animal rights in action, but political cross-species art in action and the collaboration with the birds was organic to the project. However, on a more positive note, PETA’s critique also raised important questions regarding the legitimacy of arts/science experiments. PETA’s accusations were built on the assessment that PigeonBlog was not scientifically grounded, and should therefore cease its activities. Is human-animal work as part of political action less legitimate than the same type of activity when framed under the umbrella of science?

In addition to technophile “fans” of the project who simply admired the “coolness factor” of putting electronics on birds, PigeonBlog also received inquiries from environmental health scientists with questions about the technology used and wondering if the device could be used for their own research, which for the most part was geared towards tracing personalized pollution exposure to humans. /6/ Another group of people who inquired about the project were ornithologists (professional and hobbyists) looking for cheap and feasible ways to track birds of all kinds. Then there were the many emails from pigeon fanciers around the country wanting to become involved in the PigeonBlog project itself, as well as green/environmental activists simply being supportive of the project’s goals.

All of these inquiries had a logic to them. Whereas the technophile approach to anything electronic was certainly the least interesting or relevant to the project's ambition, that community is at least partially linked to the type of work technoscience artists engage in. The specific questions regarding the technology and its potential usefulness for other research endeavors made sense, after all the project did produce a very small, light-weight and inexpensive device that couldn't be purchased commercially.

However, we also received an invitation to participate in a Defense Advanced Research Projects Agency (DARPA) grant geared towards the development of small autonomous aerial vehicles designed around the aerodynamics of birds, /7/ as well as inquiries regarding the feasibility of "measuring pulmonary artery pressure in birds during flight." How could PigeonBlog possibly be of help to these people? Isn't it obvious from this work that a DARPA grant is the last thing that its authors would want to be involved in and that she is neither a biologist nor a veterinarian? Why was I suddenly being associated with areas of expertise that I was in no way qualified to respond to?

PigeonBlog received a lot of media coverage. Both national and international major newspapers had covered the project as well as national television news channels. In nearly every instance, I was being referred to as "Beatriz da Costa, researcher at the University of California, Irvine." "Researcher" seemed to imply "scientist" in many people's minds, rather than "creative," "social" or "artistic" researcher. Suddenly I was put under a similar scrutiny and questioning that scientists have to go through after publishing their work, and the association of the "political technoscientific artist" as a "specific" intellectual, seemed to have gone one step too far.

This realization and thoughts about the future of PigeonBlog made me pause for a while. Did the project lose its political potential by becoming too closely associated with the university and myself being an actor within it? How should PigeonBlog continue? Should PigeonBlog data be linked to existing air pollution models in order to justify the projects scientific validity to criticism raised by groups such as PETA? And what would this approach entail? Would large amounts of money now have to be raised to conduct a "scientifically sanctioned" study? Would pigeons have to be flown for several years, eventually accumulating enough data to publish results in a scientific journal, rather than at an arts festival? Wouldn't this end up creating the same trap of eventually developing expertise over time while becoming less accessible to a non-expert public?

At this point, PigeonBlog's future remains uncertain. Perhaps the most inspiring and gratifying inquiry came from the Cornell Lab for Ornithology who asked me to serve on the board of their current "Urban Bird Gardens" project, which is part of their citizen science initiative. /8/ The citizen science initiative involves bird observation and data gathering conducted by non-expert citizens, ranging from the elderly to schoolchildren. Unlike other "outreach" programs conducted by universities around the country, Cornell's citizen science initiative actually uses the collected data as part of their research studies. Several projects conducted under the citizen science agenda, such as "PigeonWatch," "Urban Bird Studies" and now the "Urban Bird Gardens" project overlap in their aim and audience with the ambitions the PigeonBlog project set out to address.

Rather than dedicating myself to a scientific justification of PigeonBlog built within the university research environment and its related publication venues, I am hoping that this approach will be more true to PigeonBlog's original aim in situating itself between the academy and non-expert participants.

References

/1/ Michel De Certeau, *The Practice of Everyday Life* (Berkeley: University of California Press, 1984), 148.

/2/ [PigeonBlog](#)

/3/ Another example is the [Zapped! project](#) by Preemptive Media.

/4/ Nino Künzli et al., "Breathless in Los Angeles: The Exhausting Search for Clean Air," *American Journal of Public Health* 93, no. 9 (Spring 2003): 1494-1499.

/5/ Hans-Peter Lipp, "Pigeon Homing along Highways and Exits," *Current Biology* 14, no. 14 (27 July 2004), 1239-1249.

/6/ Preemptive Media's "AIR" project addressed the pollution exposure to humans in more detail. For more information, see: www.pm-air.net

/7/ This inquiry came from a major research university in Arizona.

/8/ [Cornell's citizen science initiative](#)