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Animal archeology: Domestic pigeons and the nature-culture dialectic

Abstract

This paper historically traces the purposive domestication of pigeons in order to examine the dialectical relationship between nature and culture. It is demonstrated that each instance of the domestication of the pigeon for a new function (i.e., food, messenger) also entailed the construction of a role of the bird in human society, replete with symbolic representations and moral valuations. Yet it is also argued that, though animals are repositories for social meaning, and culture is literally inscribed into the physical structure of domesticated animals, such meanings are patterned and constrained according to the biological features of the animal itself. The ubiquitous and unwanted "street pigeon" now found around the globe is the descendent of escaped domestic pigeons, occupying the unique and ambiguous category of "feral"- neither truly wild nor domestic. Ironically, the very traits that were once so desirous and that were naturally selected for are now what make the feral pigeon so hard to get rid of and so loathsome.

Keywords
Pigeon; Human-animal Relations; Domestication; Nature; History; Wildlife

Pigeons are one of the most common, and problematic, birds in the world today. Throughout history, however, they have perhaps taken on more symbolic and functional roles than any other bird. Modified over millennia through genetic manipulation to serve as messengers and a food source, and used to represent images of love, peace, the holy spirit, and even heroism, the "street" pigeons that populate our cities today confront us as our own cultural detritus. They are no longer useful for most of society and are more likely than not to be deemed "out of place" (Philo and Wilbert 2000) in the modern metropolis. Increasingly portrayed as a nuisance and a health menace, today pigeons are commonly derided as unclean, "rats with wings" (Bronner 2005: 433).

This paper traces the various functional roles of pigeons throughout time and space, and the associated social meanings ascribed to pigeons based on these roles. The goal is to reveal how culture is inscribed in animals through the process of domestication in ways that, while context specific and somewhat fluid, are also cumulative and grounded in the biology of the animal. This leads to tensions and

contradictions in how pigeons are categorized, regulated, and interacted with today. While it has become common sense within sociology that animals and nature are never socially unmediated (Bell 1994; Bronner 2005; Fine 2003; Irvine 2003; Sabloff 2001; Tovey 2003; Wolch and Emel 1998), in describing the "natural history" of the pigeon I seek also to emphasize the ways that the biological particularities of the bird- as "objective conditions"- have guided and constrained the social meanings attributed to pigeons. In this sense, I seek to employ a historical case study to emphasize the dialectical relationship between the actual behavioral traits and biology of an animal and the social meanings that the animal takes on in various contexts (see Nash 1989). While it may appear unnecessary to dwell on this point, much recent work on animals- in its zeal to reveal the socially constructed aspects of beings long conceptualized as opposed to culture (Anderson 1998)- borders on "strict constructionism" (Herda-Rapp and Goedeke 2005: 8). Strict constructionism argues that objective conditions are relatively insignificant and can be ignored in examining the subjective processes of meaning-making (Spector and Kitsuse 1977), such as in May's (2004) analysis of how a boys' basketball team socially constructs mice in ways that affirm their masculinity, where he claims that "the particular object [the mouse] … matters little" (May ibidem: 175). However, it is also demonstrated that every instance of pigeon domestication necessarily resulted in the construction of a pigeon image or "character" and a moral valuation of this bird.

Lastly, while some qualitative human-animal scholars have employed history to examine human-animal relations and the changing nature-culture boundary, the majority of the sociologists among them have preferred ethnographic investigations (i.e., Alger and Alger 2003; Arluke and Sanders 1996; Goode 2006; Irvine 2004). There has also been a bias in sociology toward studies of companion animals (ibidem), with less attention paid to livestock (but see Tovey 2003; Buller and Morris 2003) and even less paid to wildlife and "nuisance" or "pest" animals (but see Herda-Rapp and Goedeke 2005). I seek to demonstrate how many of the claims advanced by interactionist scholars can be supplemented and advanced by excavating the historical record of animal domestication. The tension inherent in the category of "feral" is also revealed, whereby the pigeons that inhabit our streets are not truly wild nor domestic since they are the descendents of escaped domesticated animals that were "reorganized so that their 'natural' state became one of coexistence with humans" (Anderson 1998: 121).

The social construction of animals

While the seeming permeability of the boundary between nature and culture in "primitive" societies led scholars to closely examine human-animal relations, especially through the religion of totemism (Durkheim 1912; Levi-Strauss 1962), modernists see themselves as having clearly separated nature from the social order (Latour 1993). Thus examining animals in society no longer seemed important. But Berger (1980) once again asked the question "why look a animals?" a quarter century ago; and in 1979, Bryant urged social scientists to investigate "ideological conflicts" over animals, the significance of relationships with companion animals, and the link between animal abuse and interpersonal violence. Since then, scholars have taken up studies along all three lines that demonstrate the centrality of animals in contemporary society.

Recent ethnographies highlight the complexity of relationships between (human) guardians and their companion animals, documenting- contra Mead (1934)-

how such relationships shape human and animal selves and indicate levels of shared understanding traditionally not thought to exist across the human-animal divide (i.e., Alger and Alger 2003; Arluke and Sanders 1996; Irvine 2004). Whether or not one buys all of the claims (see Jerolmack 2005), their documentation of such relationships challenges students of interaction who, by failing to examine human-animal interaction, ignore processes that may be central to how humans live and make sense out of themselves. These investigations also make a serious attempt to understand how animals themselves perceive and interpret such interactions.

It is common to emphasize the ways that animals are imagined (Kean 2001) or become symbols that reflect the cultural context from which they emanate. Thus a pigeon or dove is portrayed as a gentle, loving symbol of peace by animal rights activists trying to prevent hunting while their opponents construct it as a useless, vermin-infested "rat with wings" (Bronner 2005; Herda-Rapp and Marotz 2005); sparrows, as an "invasive species," were framed as "filthy immigrants" to resonate with anti-foreigner sentiment during the turn of the 19th century (Fine and Christophorides 1991); mice are talked about and treated in ways that allow boys to reinforce hegemonic masculinity (May 2004); and the bulldog is bred to comical proportions to represent some Platonic aesthetic ideal (Nash 1989).

Some "cultural geographers" have focused on the ways that humans make or deny a *place* for non-companion animals in society, and what such actions and rhetoric say about how human groups construct and police the boundaries between "nature" and "culture" (Philo and Wilbert 2000; Wolch 2002). Drawing on Latour (1993), these scholars are "challenging the binary geographies of 'nature' and 'society'" and are elaborating "a notion of 'wildlife' as a relational achievement" (Whatmore & Thorne 1998: 437) that is always culturally mediated.

A group of sociologists examining conflict over wildlife (see Herda-Rapp and Goedeke 2005) has also utilized Latour's "actor network theory" to examine how social understandings of animals are contingent on institutions, technology, and who has the power to advance claims in the pubic arena. Some rural sociologists have advanced a similar agenda (Milbourne 2003; Tovey 2003; Skogen and Krange 2003; Enticott 2003), as have scholars who examine how laboratory animals are rendered as scientific objects (Birke 2003; Lynch 1988).

Because nature, including animals, is always social (never unmediated), how we construct animals reflects our conception not only of nature but also of society (Bell 1994; Fine 2003; Greider and Garkovich 1994; Milbourne 2003; Tovey 2003). Tracing the "placing" and domestication of animals- while of course demonstrating humankind's seemingly endless thirst to control (and destroy) nature- signifies the values of society and the ways in which the nature/culture and human/animal boundary is protected, negotiated, and challenged. For example, Philo (1995) demonstrates how the removal of slaughter houses and livestock from 19th century London had less to do with public health than with an obsession with sanitizing the city, literally and conceptually, as a moral value tied to modernist ideals that envision a pure human society divorced from nature. Anderson (1998) demonstrates that animal domestication was a sign of human civility that took on additional metaphorical significance in Judeo-Christian thought. And, in a case study of the bulldog, Nash (1989: 358) demonstrates how the bulldog is not only "the result of breeding for social meaning," but also how it occupies three distinct social categories- "show dogs, celebrities, and pets"- that each consist of separate interpretive frames and that result in varying placement of the animal along the human-animal (other) continuum based on their perceived character.

For my purposes, Nash's (1989) investigation is the most illustrative. Situated within the interpretive and constructionist paradigm, while Nash emphasizes that "nature is of little use in her primordial state" (Nash ibidem: 369) and that the bulldog "is a living symbol of social meanings for nature" (Nash ibidem: 368), he also grounds the examination of the bulldog's character in its biological traits and traces how the dog was originally selectively bred to fulfill certain functions. Today, the bulldog stands as the product of centuries of selective breeding; while no longer serving its original function for societies, that set of nature/culture relationships is literally inscribed in its body and plays a significant part in guiding and constraining current relationships between the bulldog and humans. As will be demonstrated below- though the history is far more complex- the same is true of the pigeon. It appears that no other animal besides the dog has been subjected to so much genetic manipulation.

Methodology

The veterinarian Dr. Wendell M. Levi, author of *The Pigeon* ([1941] 1963) - the most complete treatise on domestic pigeons ever written- and "accepted everywhere as MR. PIGEON" (Levi [1965] 1996: back cover), writes, "All available evidence shows that from the time primitive man first domesticated animals, the pigeon was regarded as the highest of all speechless creatures, and was an integral part of the life of man" (Levi 1996: 13). Few, including I, would take this statement at face value; but it does serve as an appropriate prelude to an historical examination of the numerous, often hidden, functional and symbolic roles that this bird has played in societies throughout the world and through the ages. As will be demonstrated, "any attempt to explore the history of the pigeon necessitates the tracing of the history of the human race" (Levi 1963: 1). Yet Levi's statement also points to the problem of locating unbiased and comprehensive information about the history of the pigeon and humans' relations to it.

While Levi leaves behind a wealth of information about pigeons with his two books *The Pigeon* and *The Encyclopedia of Pigeon Breeds* (1996), much of the information pertains to caring for pigeons and classifying breeds. Pigeons have mostly flown under the radar of historians. In their place, pigeon fanciers with their own favorite breeds or particular interests have provided partial histories in books and magazines dedicated to these birds; but they are often selective and perhaps inaccurate. Thus, attempting to cobble together a modest history of pigeons requires relying largely on trade publications and amateur historians. While I strive to present the historical facts in a readable form, my debt to these lay pigeon scholars and publications is hopefully evident on every page. All historical information provided is theirs.

The origin of the pigeon (and dove)

Many people today would be surprised to know that there are over 300 breeds of domestic pigeons, all originating "from one wild source, the *rock dove*" (Bodio 1990: 47). It was Darwin (1883), who himself kept domesticated pigeons, that first argued that the *Columba Livia* is the ancestor of all modern domestic pigeons, noting that "the evidence that all the domestic races [of pigeons] are descended from one

source is far clearer than with any other anciently domesticated animal" (quoted in Bodio 1990: 46).

The rock dove is also commonly known as the *rock pigeon*. This calls attention to the fact that the difference between a "dove" and a "pigeon" is a peculiarly baseless social construction. Biologically, they are the same animal. Ornithologists draw no substantive behavioral or physical distinctions between the two. "Some languages do not even have separate words for pigeons and doves" (Green-Armytage 2003: 14); the distinction is a matter of convention whereby larger members of the species have usually been called pigeons and smaller members have been called doves. In fact, the first definition of a "dove" in *Webster's New World College Dictionary* (1996: 410) is this: "1. PIGEON, esp. the smaller species." We also tend to call doves the variety that lives in wooded areas or that migrates, yet other birds that display such characteristics are called "wood pigeons." In light of the way that families of animals such as the "dog" are grouped despite variations by breed, the distinction between doves and pigeons appears quite capricious. I will use the terms interchangeably throughout.

Today, man*y* people, especially urbanites, experience only one kind of pigeon- the ubiquitous, sometimes dirty and always hungry, *feral* pigeon that lives off of human refuse. Many feral pigeons throughout the world strongly resemble the original rock dove in color and pattern. Weighing about 10-15 ounces, the rock dove has a solid colored head- usually dark, green and purple "metallic" neck ornamentation, and a light grey ("blue") body with dark "bars" on the wings and a dark tail. Colors and patterns of feral pigeons around the world may vary (i.e., "checkered" instead of "solid" color), as mating among varieties of pigeons (including newer domestic varieties) disperses color and pattern traits. Most of today's "street pigeons," found all over the world, "are the descendants of domesticated [rock doves] that got away and succeeded in living on their own" (Patent 1997: 13). In other words, the presence of feral pigeons in almost every city and town around the world- often called "rats with wings" and maligned for their supposed messiness and risk of disease transmission- is the result of prior generations of human intervention in nature. While the original rock dove is indeed wild, humans bred this animal and brought it with them around the world.

The exact origins of the rock dove are unknown, but are usually traced to North Africa, parts of coastal Europe, the Indian subcontinent, and Central Asia (Bodio 1990; Levi 1996). The natural habitat of this bird is generally among rocky ledges and cliffs, caves, and open country- not among forests and shrubbery. Naturally being ground-feeders, pigeons flocked to human settlements the moment agriculture was invented to eat from the earth made fruitful by human hands. Being at home in treeless areas and on ledges, adapting to urban environments proved unproblematic.

The historical functions of pigeons

Historical evidence shows that pigeons are among the first of any animals, and *the* first of all birds, to be domesticated. "Records and carvings of doves have been found as early as 3000BC" (Glover & Beaumont 1999: 9), but some argue that domestication may have taken place as long as 10,000 years ago (Patent 1997). Levi (1963) points to archeological records such as terra cotta figures found in present-day Turkey- dating from the fifth century B.C.- and a Greek grave stone depicting a man affectionately holding two pigeons- dating from 500 B.C.- as evidence of the early domestication, and high regard of, this bird. Pigeons appear on

Egyptian bas-reliefs from at least 2700 B.C. From Homer (circa ninth century B.C.) to Socrates (469-400 B.C.) to Aristotle (384-322 B.C.), the Greeks displayed knowledge of the pigeon's habits and abilities and wrote about issues of selective breeding and domestication (Levi 1963: 30). Roman records from as far back as 200 B.C. document the force-feeding of pigeons for purposes of fattening them for consumption. The pigeon also finds its place in literature and mythology.

The pigeon as food and fertilizer

The oldest documented use of pigeons comes from areas in and around the Middle East and North Africa. Twelve thousand year-old pigeon bones found in caves in Israel that were used for human dwelling indicate that ancient hunter-gatherers used wild pigeons as a food source (Johnson & Janiga 1998: 270). The first domestication of pigeons was "probably brought about by grain farmers between 5,000 and 10,000 years ago" (Johnston & Janiga 1995: 6). That is, as soon as agriculture began in regions containing wild rock pigeons, these pigeons made their way to human settlements and foraged for grain. It is thought that the mud and stone walls of early human settlements- so similar to the pigeon's natural habitat in caves and on ledges- provided good nest sites for the birds, and that their presence in and around human settlements made them candidates for capture and domestication as a food source. Once pigeons were captured for consumption, they were noted for their "reproductive magic," breeding more times and for a longer season than any other bird and most other animals (Johnson & Janiga 1995).

Today, in such places as Egypt and Turkey one can still see the mud houses, some of them thousands of years old, built to shelter domesticated pigeons in separate small dugout holes (pigeons do well in such small places; they seem not to mind being "pigeon-holed"). It was quite common for entire "pigeon colonies" to exist, clusters of dozens of pigeon houses containing thousands of pigeons. Pigeons were also kept for their nitrogen-rich *guano*, or feces, which is likely one of the first types of fertilizers used by newly emerging agricultural societies. Pigeon meat has been a staple of some cultures and a delicacy among others. It is preferable to eat young pigeons- called squab- before their meat gets too hard. In France today, squab is often served in the finest restaurants. Squab has been and still is eaten in the United States as well. Yet while the Palmetto Pigeon Plant in South Carolina- which created its own breed of squab in the 1940's (Levi 1996: 212)- still exists, squab consumption is on the decline in the US.

Such mass consumption of squab can leave ecological scars. Prior to the 20th century, a type of wild migratory pigeon called the "Passenger Pigeon" used to call the United States home (see Eckert 1965; Schorger 1955). Their migrations around North America were said to be one of the largest mass movements of animals in existence. From Texas to Florida, an estimated five billion pigeons would migrate for food. It has been documented that a single flock could have two billion birds and be 2 miles wide and more than 10 miles long. Daytime would be transformed into night when they passed over an area while migrating. While John Audubon (Audubon Society n.d.) wrote in the 1830's, "they are killed in immense numbers, yet without any apparent diminution," it took only several decades for humans to kill every last one of these pigeons for meat. Taking advantage of breeding season, when the pigeons nested in close quarters and were stationary, hunters would simply pick up the birds and snap their necks, filling bag after bag with the valuable carcasses. Tens of thousands were killed everyday. By 1900, incredibly, the last known passenger pigeon living in the wild was killed by a young boy in Ohio. By 1910 only

one passenger pigeon, in a zoo in Cincinnati, remained. On September 14, 1914, "Martha" died, never having left her cage at the age of 29 years. Martha's body can be visited at the U.S. National Museum in Washington, D.C. The solitary cadaver neatly summarizes the confident, unflinching conquest of nature that proceeded more or less unabated at that time.

Today, few societies or regions rely on pigeon guano, as agribusiness has found more cost-efficient ways to produce fertilizer. In addition, squab meat is increasingly a specialty item (in the US, the industry was destroyed by the bigger and cheaper chicken), and many of the breeds originally created to provide the best- or the most- meat now are bred primarily for exhibition in competitive pigeon shows. These first and most functional uses of pigeons, while disappearing today, are what brought humans and pigeons together thousands of years ago. Once humans domesticated pigeons, even as they used them for food or fertilizer they began to explore other functional and leisure possibilities for these birds. Additionally, this early use of pigeons led to their value as a *commodity*, brought with traders and armies that began to march out of the Middle East and around the globe. Early civilizations also immediately noticed and valorized certain traits of pigeons, turning them into potent *symbols*.

The pigeon as metaphor

Humans often live their lives and describe their world through narratives (Smith 2003) and metaphors (Fine 2003). One of the defining characteristics of humans is their use of symbols to convey meaning (Mead 1934). As Levi-Strauss (1962) so famously stated, and as Durkheim (1912) also demonstrated in his study of Australian aboriginal clans, animals are "good to think" with; and close associations with animals inevitably lead to the incorporation of animals into the symbolic orders and narratives of human collectives. It is a biological fact that a pair of pigeons, once mated, usually remain- and only mate- with each other. While humans began to exploit this natural trait for the selective breeding of squab, a spillover effect of pigeons' monogamous habits was their candidacy for *anthropomorphizing*. Thus, initial breeding for consumption began to have unanticipated impacts on societal narratives. Monogamy is historically a morally valued trait in many societies; the fact that pigeons, unlike many other animals, display this trait resulted in positive moral evaluations of these animals by ancient civilizations. Their monogamous habits led to their use in rituals and shrines that celebrate love. The "reproductive magic" of pigeons described above also made them suitable for representations of fertility and sex in Mesopotamian mythology and shrines from as long as 6,500 years ago.

Levi reports (1963) that pigeons were regarded as sacred among the ancient Syrians and Assyrians. The pigeon was used by the Greeks to represent Aphrodite, the Goddess of love (Patent 1997); and in Hindu mythology, Kamadeva- the goddess of love- is portrayed using a dove for a steed. While the pigeon took on abstract and symbolic meanings, it is the close relationship between these societies and the natural world, and the subsequent catalogue of knowledge that human groups accumulated, which led to these specific social constructions. That is, for those who actively interact with animals, the process of translating animals into culturally meaningful objects- what Fine (2003) calls "naturework"- is significantly grounded in ascertaining objective conditions (in this case, the biological traits and habits of pigeons). As will be further demonstrated below, it appears exaggerated to state, "animals are indeed a blank paper which can be inscribed with *any* message, and symbolic meaning, that the social wishes" (Tester 1991: 46; emphasis added).

"One of the earliest records of the dove is to be found many thousands of years ago in the story of Noah and the flood" (Glover & Beaumont 1999: 9), where a dove delivered the news of dry land to Noah by returning with an olive branch (after a raven failed to return). "Ever since, the dove has symbolized deliverance and God's forgiveness" (Butz 2005). Levi (1996: 13) points out, "In the book of Leviticus the pigeon has the questionable honor of being considered clean enough to be used as sacrifice." Additionally, most Westerners are familiar with the image of the dove, from the New Testament onward, as the emblem of the Holy Spirit; and in early Christian paintings, "the dove, issuing from the lips of dying saints and martyrs, represents the human soul purified by suffering" (Levi 1963: 5). It is also claimed that pigeons saved the Islamic prophet Mohammed when he hid in a hole and they built a nest over the entrance. Those seeking his persecution did not search for him in holes where pigeons nested because it was believed that these cautious animals would never build a nest near humans.

Levi reports (1963: 3) that this "reverence for the pigeon has continued to this day in Mohammaden countries;" in 1925 a "near riot" was caused when two European boys killed some street pigeons in Bombay, prompting the closing of the general market and stock exchange. There is still a "Mosque of Doves" in Istanbul, Turkey where the pigeons are not to have their nests disturbed. Today, pigeons still are used to represent love. It is popular to release white pigeons (almost always called "doves") at weddings, as well as at funerals, to represent peace and the soul's eternity.

The dove as a symbol of peace is one of the most recognizable icons in the world. Continuing with *Webster's* (1996) definition of "dove":

> It is often used as a symbol of peace. 2. an advocate of measures in international affairs designed to avoid or reduce open hostilities. 3. a person regarded as gentle, innocent, or beloved. (p. 410)

Why are pigeons so represented? Green-Armytage (2003: 15) states, "Doves in particular have always appealed to us, with their attractive looks and gentle cooing sounds. Many of us find they have a calming effect . . . They are home-loving and monogamous, with tender signs of affection similar to those of human lovers. They have become symbols of wooing, romantic love, purity, fertility, and matrimonial fidelity." The seeming gentle nature of the dove, combined with its soft coo and its (sometimes) white plumage, render it appropriate as a symbol of peace and purity, whereas its predator- the hawk- stands in as a symbol of aggression and hostility.

In modern times, the status of the dove as a symbol of peace was cemented when Picasso painted a single white dove on a poster advertising the 1949 *World Peace Congress* (Picasso was an avid pigeon fancier, naming his first daughter "Paloma"- which means pigeon in Spanish). "House Resolution 244" in Michigan designated the "mourning dove" (sometimes so called because its soft coo is interpreted as "sad") the official "state bird of peace," and other American states like Wisconsin have made similar designations (although it has recently also been controversially designated as a "game bird" (see Herda-Rapp and Marotz 2005). The logo of the United Nations relies on a dove as well. References to the pigeon abound throughout literature, as when Shakespeare draws out some of their desirable qualities in his description of a fair maiden in *The Taming of the Shrew* (Act II, Scene I, line 295): "For she's not froward, but modest as the dove." (quoted in Levi 1963: 32).

The abovementioned symbolic uses of pigeons are but a small sample of such iconography, yet demonstrate the central significance of the image of this bird to

millions of people, around the world, for thousands of years. Such symbolic use has been founded on its perceived "natural" qualities. That is, based on the positive functions that this pigeon served for human civilizations, the character of this bird was constructed in morally positive- even sacred- terms. Yet, as should be apparent, the arbitrary linguistic division between doves and pigeons- despite the fact that they all share the traits named above- allows for an unusual tension and contradiction. Doves have come to represent all of the favorable qualities discussed, while pigeons have become recipients of social disgust and even hatred reserved for very few in the animal kingdom (i.e., rats and cockroaches). The conventional division between the two, inconsistently executed long ago as a folk method to aid classification, had the unintended consequence of enabling pigeons to become "rats with wings" today while doves are revered, though they are more physically similar than any pairing of two dog breeds. The folk characterization of pigeons vs. doves echoes a more general social mechanism whereby subtle differences are magnified and made meaningful through the social construction of "deceptive distinctions" (Epstein 1990) that appear essential when decoupled from the site of production.

The pigeon as messenger

Thus far, we have seen how humans in specific regions of North Africa and the Middle East began to domesticate pigeons for food thousands of years ago. The interactions between pigeons and humans led to the gradual accumulation of a stock of knowledge of the pigeon's traits. This knowledge was put to use to successfully breed pigeons, and incidentally led to the construction of symbols and myths that incorporate pigeons (along with other animals). Such interactions also led to serendipitous discoveries by humans, such as the value of pigeon guano as fertilizer. As the value of the pigeon became apparent, it became a commodity. Yet more fruitful serendipitous discoveries were to be made. The rock dove is naturally gifted with an ability to find its way "home" from far away places, relying on abilities beyond memorization. Humans discovered this capability by accident, when pigeons released far from home- either given or traded to someone or abandoned - found their way back to where they had previously lived. It was not long until humans began to selectively breed the most able pigeons to heighten this capability; and it is this unique ability of the pigeon that has perhaps become the most legendary. Thus, a "functional" or "positive" unanticipated consequence (Merton 1936) of the domestication of pigeons for food was the accidental discovery of its "homing abilities." This discovery became the foundation for increased domestication of pigeons aimed at new instrumental ends, which led to their proliferation to new locales and new moral valuations.

Glover and Beaumont (1999: 9) point out that an Egyptian bas-relief from around 1350 B.C. "depicts a flock of doves being released from their cages to fly and then return." They go on to say that early Greek poets tell stories of lovers relaying messages via pigeons, and that pigeons were used to send home the names of the victors in the original Olympic Games. Ancient Rome used pigeons to send war reports home from the front (such as Caesar's conquest of Gaul), there are accounts of breeding pigeons as messengers in ancient China (500 A.D.), and they were used to report earthquakes in Japan (Glover and Beaumont 1999; Levi 1996 & 1963; McCafferty 2002). Alexander the Great and Hannibal also made use of pigeons to coordinate war and announce victories.

By the thirteenth century, Genghis Khan had established a pigeon relay service across much of Asia and Europe (McCafferty 2002), Sultans of the Persian Empire

built pigeon lofts all over to transmit crucial information throughout the reaches of the Empire, and roving caravans in Africa employed them to communicate (Levi 1963: 29). During the beginning of global mercantilism in the twelfth century, Baghdad was a crucial crossroads for East-West trade. It is likely here that Western Europeans such as Dutch sailors encountered these early "homing pigeons" that they subsequently took home and bred to create the "homers" now found throughout the new world (Glover and Beaumont 1999). As commerce and warfare spread throughout Europe (i.e., the Crusades), pigeons slowly made their way across the continents.[i]

In more modern times, pigeons have been bred to fly much greater distances and have been credited with "saving" thousands of lives. Most homers in the heyday of the Persian Empire were limited to ranges of 100-200 miles. Bodio (1990) writes:

> Our world and the [modern] homing pigeon were born at the same time, in the turmoil of the Industrial Revolution, in the wars and uprootings that from the late 1700's onward transformed the stable old kingdoms into modern nation-states. Now they became state-of-the-art communications tools for expanding armies. (p. 30)

Many pigeon fanciers and historians of war agree that the siege of Paris during the Franco-Prussian War (1870-1871) represents the coming-of-age of the pigeon as a modern instrument of war.[ii] Heretofore isolated breeds of pigeons were crossed throughout Europe to maximize speed and endurance. Belgium came to be known for its fast short-distance flyers and its endurance flyers; meanwhile, the English increasingly bred their own varieties. It was not only warfare and postal services that led to the development of the homer; by the 1850's "Belgians had almost universally adopted *pigeon racing* as a hobby" (Glover and Beaumont 1999: 11), and across England the sport was taken up- particularly among working class males. Breeding innovations made by racers now translated back into more efficient messengers for war.

During the siege of Paris, Parisians released balloons carrying pigeons into the air; many made it to other countries, including England. In London, messages were put onto microfilm that was then tied to a pigeon's tail feathers; a microphotograph could contain up to 2,500 messages, and a pigeon could carry as many as 12 photographs. The pigeons were then released to fly home to Paris. The pigeons relayed over one million messages, personal and strategic, over Prussian lines and into Paris from London during the siege. The success of the pigeons led to most Western armies adopting Pigeon Service divisions. Few likely anticipated how soon these birds would prove their worth again, in the Great War and again in World War II.

The first "modern war," World War I, witnessed the use of phone and telegraph lines to send crucial messages in record speed between the front lines and command centers. Yet communication lines were repeatedly destroyed or tapped by the enemy; thus, homing pigeons were used on an unprecedented scale. In fact, pigeons were seen as so valuable, or dangerous in enemy hands, that the Germans ordered all pigeons destroyed when they occupied Belgium and France (Patent 1997: 54). The British Army trained "pigeoneers," soldiers specifically trained to care for and travel into battle with up to four pigeons. By 1917, hundreds of messages were being passed in every battle; and by the close of the war Britain had 22,000 pigeons in service, attached to 150 mobile lofts and 400 pigeoneers (McCafferty 2002: 11).

By the time World War II occurred, even with advances in technology pigeons were of major value. For example, Britain dropped birds from a plane into occupied France and Belgium. With luck, a sympathetic civilian in the occupied territory would find the bird in time, read the message, and take the risk of providing any known details about enemy positions or other helpful information. After filling out the survey, the individual would release the pigeon for its return flight over the sea to England. Pigeons were even strapped to the chest of American paratroopers during the D-Day invasion, bringing the first news of the invasion to England along with the position of enemy rocket launching sites (Patent 1997: 54).

Also during this time, the famous American behaviorist B.F. Skinner, who had been performing operant conditioning experiments with pigeons for years and applying the findings to human behavior,[iii] cooperated with the U.S. military on "Project Pigeon." Skinner trained pigeons to guide missiles to enemy submarines by devising a system that would reward the pigeon with a piece of food every time it pecked a moving target on a screen that represented the submarine (Skinner 1959). However, though trials proved successful, the program was scrapped when radar use became widespread among the Allies toward the end of the war.

The role of pigeons in war was acclaimed throughout Europe and the U.S. A large monument in Lille, France and another in Brussells pay tribute to the efforts of the pigeons that served in the Great War. Hundreds of stories document the "heroic" character of these birds that saved human lives. Thirty-two pigeons received Britain's prestigious Dickens Medal, awarded to animals that serve humans heroically (only 54 total have been awarded). This bronze medal, created after World War II, bears the phrases "For Gallantry" and "We also serve" (McCafferty 2002: 168). One of the most famous recipients of this award is the American-bred pigeon named G.I. Joe. This pigeon delivered a message to Allied bombers telling them not to attack a position that the British had just seized from the enemy. Arriving at base just minutes before the bombers took off, the lives of hundreds of British soldiers were spared. The valor of these animals was memorialized again in November of 2004, when London unveiled a sculpture of dogs, mules, elephants, and pigeons with the inscription: "Animals in War. This monument is dedicated to all the animals that served and died alongside British and Allied forces in wars and campaigns throughout time. *They had no choice.*" At the ceremony, attended by many veterans, a stock of homing pigeons was released. The stuffed body of another heroic pigeon, Cher Ami. can be seen today at the Smithsonian Institute in Washington, DC. Much as pigeons entered early mythology based on their admirable traits of reproduction and monogamy, for an era pigeons were constructed as heroes based on their ability to home. Aside from serving as messengers in war, they launched the Reuters news empire. It was not long after World War II, however, that using homers to send messages became "obsolete even as their efficiency topped out" (Bodio 1990: 24). Today, one is hard pressed to find such functional uses of pigeons. However, for some decades after World War II, homers would find an increasingly popular niche around the world as racers, their popularity heightened by their heroics in the war.

Racing homers

The use of the pigeon as a messenger led to its further global proliferation. As far as conquerors pushed- whether Roman, Greek, Arab, and so forth, they brought their pigeons with them. Even as the invaders left, descendents of their pigeons stayed behind to be bred for future wars with new enemies; many such descendents

also escaped to create new populations of feral pigeons. Pigeons continued to be genetically manipulated through selective breeding, leading to increasing numbers of pigeon breeds that varied in terms of flying abilities and coloration. Yet the discovery of the pigeon's homing ability opened unforeseen possibilities that extend beyond that of a messenger. Sports and gambling are as old as war, so it should come as no surprise that pigeons bred to be messengers became available for these leisure-oriented ends.

Some form of racing pigeons and betting on the outcome existed as early as 200 A.D. in Palestine (Levi 1963: 4). However, pigeon racing took off as an organized sport precisely at the moment that *homers* became prominent as commercial and military messengers. By the end of World War II, when this functional use became superfluous, the pigeons bred for such purposes would continue to provide a leisure and economic or competitive function to race enthusiasts around the world.[iv] As mentioned above, by the middle of the nineteenth century Belgians had nearly perfected the modern racing homer now used throughout the world through the continual crossbreeding of several types of pigeons. This pigeon is a "workhorse," a large and strong-boned bird able to endure long flights and heavy winds. Levi (1996: 169) says of this bird, "Size, color, type, or shape are of little concern if a bird is a consistent winner." That said, if one wants to envision a homer you need merely to imagine a typical "street pigeon" but with a larger body (especially a broad chest) and *cere* (the small piece of flesh located above the beak).

Reductions in working hours in many countries of Europe, along with increasing communications and travel links, opened up the possibility for new sport and leisure activities such as pigeon racing. The length of which the homer could fly, up to 1,000 miles, made it possible for international competitions on the European continent. In 1856, a race from Rome was put on by pigeon racers from Belgium, France, and Germany. The birds were released, or "liberated," at 4:00am on July 22 and were to fly home to the lofts from which they came. It took 7 days for the first pigeon to arrive, in Belgium; in all, only 12 birds out of 125 made it back. Yet the race was seen as a success, and was put on again in 1868 and 1878. By 1878 Belgium had established formal racing organizations that controlled the race, and on July 23 pigeons from 1,101 fanciers from several countries were liberated. It was not long until large races were being held every year throughout continental Europe, while formal racing organizations sprung up in various cities and held more frequent smaller races. By 1884 Germany had many racing clubs and an umbrella organization with 1,082 members owning a total of 29, 603 birds (Levi 1963: 28). The French pigeon fancier's magazine *Le Revue Colombofile* came into being in the late 1880's, and similar magazines helped establish an international network of racing enthusiasts. Racing became a high stakes affair, with cash prizes to the winner and numerous side-bets placed among competitors.[v]

Meanwhile in England, the English Carrier Pigeon that was bred to serve news agencies, but which became obsolete when the telegraph took off, started to be used for short races (Glover and Beaumont 1999:15). Ample amounts of industrial work brought disposable income to even the working class, especially in and around Lancashire, which became the hub of pigeon racing in England. Savvy fanciers began to import the more robust racing pigeons from Belgium, and railways made it possible to release pigeons for training from farther away and hold long distance races. Pigeon lofts began to pop up in backyards and on roofs throughout England and continental Europe. By 1896, a central bureaucratic body was established- the National Homing Union (today called the Royal Pigeon Racing Association, or

RPRA). Such pigeon racing organizations serve as central bodies do in other arenas of sport- they establish universal rules and disciplinary punishment for offenders, oversee the smaller clubs, and help coordinate large races involving several local clubs. The Unions also control the issuing of identification bands, to be placed on the legs of every pigeon, and implement standards regarding clocks.

The golden age of pigeon racing lasted until the decade or two after World War II. In 1956, West Germany alone boasted 85, 000 registered members (Levi 1963: 28). Though begun in Europe, working class immigrants from such countries as Belgium, Germany, Italy, England, and Poland brought the sport with them to the countries they settled in, such as the U.S. Enthusiasm for the sport spread to the colonies held by European powers in Africa, the Indian subcontinent, Australia, Asia, and beyond. Today, this activity is on the decline worldwide even as it expands in some areas and modern technology is applied to every aspect of the sport. Besides increasing use of electronic bands and clocks, food and medicine have also become more sophisticated. Many fanciers use vaccines, pills, electrolytes, and so forth to maximize their birds' performance- and to protect their investment, as this sport becomes increasingly expensive and out of reach to members of the working class whose ancestors popularized the sport. Younger generations are less interested in the sport, likely due to the increasing cost and because of competing leisure opportunities. While still a worldwide avocation, few pigeon fanciers would argue with the assessment that pigeon racing is a "dying sport;" in Belgium the number of racers plummeted from about 200,000 to 40,000 in the past fifty years (Peters 2005).

However, pigeon racing is far from dead. The "Sun City Million Dollar Pigeon Race," held annually in South Africa, is the largest race in the world and attracts fanciers from dozens of countries. It was only begun ten years ago, and pigeon racing is now becoming popular and increasingly profitable in Taiwan. England's RPRA still has over 50,000 members today, and each year it distributes about 800,000 bands for newly bred pigeons to its members. The American Pigeon Racing Union serves as the umbrella organization for over 700 local racing clubs across the U.S.

Magazines such as the *Racing Pigeon Digest* ("The thinking person's journal of racing pigeons") in the U.S. and the *British Homing World* not only serve as informational clearinghouses about bird care and upcoming races and social events, they also reveal the competitiveness and potential costs of the sport and the perceived noble and strong character of these "racehorses of the sky." Articles and pigeon fanciers emphasize the strength, endurance, and-most commonly- the seeming intelligence of these birds, based on their ability to find their way home, without stopping, from hundred of miles away. Many pigeon fanciers also emphasize the home-loving nature and loyalty of the pigeon, who supposedly races to the loft in order to be with his or her family. In the clubhouses of U.S. pigeon racing organizations, pigeons are often depicted in front of an American flag, and their heroics in war are emphasized as a way to tie pigeon racing into a proud tradition. Full-page color adds describe racing pigeons with bold or regal names such "Aviator," a proven champion whose "direct children" fetch $3,500 (Racing Pigeon Digest 2005). Champions and their offspring have sold for well over $100,000. From small club races with little or no cash prizes, all the way up to the $200,000 cash prize of the "Vegas Classic," the sport is still going in the U.S. and around the world. However, unlike the early days, those who race today must do so within the confines of strict rules; all local clubs must be tied into a larger organization and abide by standard racing rules, and even small races now regularly involve testing stool samples of pigeons for illegal performance-enhancing drugs.

Pigeons of leisure and exhibition[vi]

For thousands of years, humans have kept pigeons for the pleasures of watching them fly[vii] and in producing pleasing varieties of colors and patterns. Bodio (1990) claims that the oldest "true" breeds of pigeon are not "utility types," but "fliers." Arabs were the first to have recognizable breeds of pigeons, many of which still exist today in Spain and Islamic cultures. The many flying varieties, from the New York Flight to the Peking Nasal-tufted Pigeon, are taught to fly as a unified stock above the loft of the caretaker. Those who kept pigeons long ago for guano or meat in places like Turkey and Egypt toyed with genetics as much as the breeders of homers, producing all types of specialty birds. Some began to keep fliers solely for the purposes of flying them for leisure. Some of these varieties, like *tumblers*, can even do acrobatics.

As long as pigeons have been racing, pigeons have been trained to fly in a stock above a coop and engage in a cat-and-mouse game that some call "the pigeon wars."

> In New York, Barcelona, Modena, Demascus, and Beijing, flocks of pigeons are sent up against 'enemy' flocks. The fanciers try to maneuver the birds together into one mass, then signal their own birds to come home. If the birds respond promptly and 'crash' to the rooftop they will most likely drag the other fanciers' [stocks] down too. Now the winner can catch all the strays. (Bodio 1990: 59)

For the uninitiated, these "wars" may be hard to understand, even as some reading this text have likely seen a "war" going on over their heads without knowing it. In places like New York City, stocks of 100-400 pigeons may often be seen flying in circles over rooftops. One trains one's birds to fly together as a stock and then commands them to fly to nearby rooftops where they meet another's stock. Birds can become disoriented when their stock meets unknown others, and the idea is that if one's stock is well trained, the pigeons can "hit" another stock and return with (or "steal") "strays" from that stock. Levi (1963: 4) cites passages from the Talmud that condemned ancient pigeon fliers for stealing one another's pigeons, and by 1327 Modena, Italy had codified rules about under what conditions one could keep or not keep the pigeons one captured. This game was also practiced in Palestine, India, and China at this time. In this sport dominated by men, akin to cockfighting (Geertz 1973) or dog fighting, one's ability to master his birds and show someone else up is translated into a successful display of masculinity.

Not everyone that keeps fliers is interested in "pigeon wars." There are several other leisure and competitive activities that pigeons can enable. Many varieties have been bred to perform acrobatics- especially *tumblers* and *rollers.* Turks, for example, have bred a tumbler that performs backwards summersaults while in flight without losing altitude. It appears that tumblers were bred as early as the 1500-1600's in and around the Middle East, yet by the 1800's many countries throughout Asia and Europe had their own breeds. Today people still form clubs and organize competitions based on this tumbling ability. *Tiplets,* or *tipplers*, are endurance fliers. The English "Flying Tippler," for example, "is a flying machine and has flown in England, where the days are long in summer, continuously for twenty hours" (Levi 1996: 589). Some breed these birds for competition- the pigeon that stays in the air the longest wins. Others keep tiplets for leisure flying.

A big reason why there are so many breeds of pigeons has less to do with breeding for function than with breeding *for show* or personal taste. Just as there are dog and cat shows where judges assess the best breed based on color, pattern, size, and other features- choosing the animal that best represents the "ideal" of the breed- so too are there competitive pigeon shows. "These are man-made 'designer birds,'" Green-Armytage (2003: 14) writes. It is through these show birds that the process of "breeding for social meaning" (Nash 1989: 358) is the most clear. The variation among show breeds is astounding. Pigeons like the "Budapester Short-faced Tumbler" have massive eyes on tiny heads, with stout beaks that barely protrude from the face (their head resembles the "pug" dog). Some breeds, such as the "African Owl," have been created with such short beaks that parents cannot feed their own young (who must rely on "foster feeder" pigeons). "Frillbacks," from Asia Minor, look just as if their feathers were placed in a curling iron, creating perfect spirals.

The name of many breeds of pigeons speaks to their origin and reveals how pigeons have been bred and kept around the world: Thai Fantail; Indian Gola; Baghdad Tumbler; Texan Pioneer; Slovak Pouter; Egyptian Swift; English Magpie; Ukrainian Skycutter; Kurdistan Roller; Tunisian Owl; Syrian Dewlap; and so forth. Pigeon fanciers, whether racers, exhibitionists, or leisure fliers, can still be found coveting these birds the world over. While direct descendents, these birds are a far cry from the rock doves first domesticated for food. These birds are produced purely to satisfy the aesthetic, often capricious, tastes of breeders. Not only are these birds mostly "nonfunctional," in any other contexts many of them would be clearly seen as *dysfunctional*. Many cannot fly, others must be hand fed, and still others can barely stand up because of their odd proportions. The value of these exaggerated, sometimes comical appearances mirrors the breeding and valuation of the bulldog (Nash 1989). Within a competitive organization that institutionalizes and validates the variety of peculiar tastes and which establishes the ideals for each breed, specific physical traits and behaviors come to have significant meaning- but meaning that is largely not translatable out of that context.

The global pigeon

Processes of globalization- political, economic, and cultural- have played a literal role in shaping the pigeon and in its proliferation around the world. If globalization is to be understood as "the growth of world interdependence" (Giddens, Duneier and Appelbaum 2003: 10), we have seen how the increasing intermingling of different societies through trade, war, and sport resulted in the spread of the pigeon to further reaches around the globe and shaped the direction of pigeon domestication. As selective breeding and interactions with pigeons altered the physical makeup of these birds and led to their increased intermingling with society, they were also inscribed with new cultural and moral meanings that reflected their role in society.

The introduction of pigeons to new environments has had enormous impact, both culturally and naturally; they provide unique useful functions for people but also present a unique set of unanticipated consequences and challenges. For example, pigeons are not native to the U.S. Yet in New York City (and most American cities), feral pigeons are ubiquitous and impact the lives of millions of people everyday- whether they are trapped and poisoned as "rats with wings" or are fed by sympathetic humans. Meanwhile, domesticated pigeons throughout the five boroughs sustain a diminishing but vibrant community of pigeon fliers who engage in "battle" from their

roofs in the "pigeon wars;" and over a dozen clubs race homers for sport and occasionally the chance to win thousands of dollars. European immigrants introduced this racing and flying "culture," along with the pigeon itself, to New York. Feral and domestic pigeons now reside around the world, affecting human communities and social relations in untold ways. Indeed, Johnston and Janiga (1998: vii) note, "feral pigeons are among the most familiar and abundant of the birds of the world."

Documenting how the pigeon came to exist around the world shows that humans manipulated these birds through selective breeding to serve immediate needs or desires, and that fulfilling these needs led to the serendipitous discovery of other useful functions. Such functions of the pigeon are contingent on time and place, and we have seen how pigeons constructed for one purpose (such as for meat) can be re-imagined to serve a different function (such as when squab pigeons become show pigeons). Through tracing the history of the varieties of pigeons, we catch glimpses of the societies that created them. In the pigeons' "habits and genes [are] encoded the history of people as well as pigeon breeds" (Bodio 1990: 55). The pigeon, or any animal, is of course never "just" a natural object with an essential meaning; it is given meaning and has action taken toward it by human beings based partially on contextual features of culture, individual biographies, and practical interests. Pigeons' depiction as both sacred and profane, symbols of love and winged rats, reveals this.

The feral pigeon

Today, "pigeons live just about everywhere people do" (Patent 1997: 7). This was not always so. As Johnston and Janiga (1995: 14) point out, "The escape of domestics to live in the wild probably always has been one of the facts of life about which poultry husbanders could not much worry;" today, "feral pigeons occur worldwide as a result of human transport of domestic pigeons." In all of the processes of intentional breeding and global movement of pigeons described above, one can imagine how many pigeons escaped into the wild. Sometimes, as when French peasants destroyed the aristocracy's pigeon houses during the revolution, or when an enemy was vanquished in war, pigeons have been intentionally released into the wild. Yet in both cases, it seems clear that few paid attention to the possibility that their individual actions, when aggregated across time and space, would result in the existence of feral pigeons in all cities of the world today. Having been brought up in and around human civilization for thousands of years, these pigeons are able to thrive in even the harsh concrete jungles of modern metropolises. Today, they are often conceptualized in harsh terms, confronting their human creators as pests who threaten society with disease and disgust society with their feces. Indeed, in an otherwise dispassionate biological treatise, Johnston and Janiga (1995: 4) feel compelled to admit that feral pigeons "are cast as pariahs… thought to be dirty and dangerous pests."

Conclusion

Cultural geographers argue that, in the imagining of modern cities, humans have increasingly less tolerance for "wildlife;" and while some wild animals are celebrated and adored because they are beautiful, rare, or useful (such as the red tail hawk "Pale Male" of New York), many become interpreted as pests (Wolch, West and Gaines 1995). While the moral status of companion animals has been elevated

to such an extent that many people consider them part of the family (Irvine 2004), and while animal rights activists continue to extend rights to include animals lower down on the zoological moral hierarchy (Arluke and Sanders 1996), the boundaries that separate companion animals, livestock, wildlife, and "nuisance" or "pest" animals are ossifying. Nash (1989: 369) points out that, "In modern society, nature is problematically related to culture." Nature "does not always yield to cultural transformations… [and] she may strike back at cultural practices [such as] with disease." Herda-Rapp and Goedeke (2005: 2) argue that some "wild animals [that] make themselves at home in human communities, greatly benefiting from a human-dominated landscape or advantaged by their human stewards… have shifted in the human conscience from wildlife to nuisances or pests." As such, animals such as sea gulls, starlings, rats, and, of course, pigeons, "are frequently the focus of deep-seated loathing among people" (Herda-Rapp and Goedeke ibidem: 2). Scarce (2005) notes an increased tendency to define wildlife in utilitarian terms, which does not bode well for "nuisance animals."

The pigeon that populates urban streets is, as Latour (1993) and Anderson (1998) would say, a "hybrid"- a product of nature and society. Yet the pigeon of history was always bred with a purpose. The hands of humans inscribed a set of social relationships into these birds through selective breeding- i.e., as a source of food and guano, or as a messenger. While not uniformly the case, pigeons- as domesticated animals- entered into relatively "stable or routinised relationships" (Tovey 2003: 211) with humans. Each role came with a set of expectations, and pigeons came to be endowed with symbolic meanings based on their perceived (and desirable) traits. Moral valuations were often placed on them as well, seen as heroes of war, and symbols of love, peace, and fertility.

While some human groups still enter into these functional relationships with this bird today, the pigeon most of us are familiar with is the "useless" street pigeon. This animal is what I would call a double hybrid. It was created by humans for domestic use but then escaped to become feral. Its physical and biological structure, as well as its reproductive abilities and habits such as dwelling on window ledges, are the product of millennia of human intervention in nature. This particular type of pigeon *never* existed "in the wild;" its "natural habitat" is among humans. "As a consequence of human activity, [pigeons] are also illegitimate offspring of artificial pigeons and not natural" (Johnston and Janiga 1995: 4). Yet that history is erased. As a feral animal, neither domestic nor wild, neither livestock nor wildlife, this animal occupies a conceptual category fraught with ambiguity. It was the pigeon's "naturally" docile nature, its "reproductive magic," and its easy adaptability to human environments that made it one of the first animals to be domesticated by humans. Worked over to possess exaggerated versions of these traits but then left to its own devices as the utility of the pigeon to mainstream society waned, it is exactly these traits that so annoy many urbanites who encounter the bird that appears to serve no function except to spread filth and disease. While it is true that all animals are inscribed with a set of social relationships, and that all domesticated animals are literally cultural products, seldom is this history so completely hidden and seldom has an animal's evolutionary history been so contradictory.

Endnotes

i While explicating the biological details of how a pigeon "homes" are beyond the scope of this paper, it is important here to understand what is possible. Homers generally *cannot* fly from their home loft to a designated place and come back. Rather, once a pigeon has been at a location long enough, that site becomes its "home." This pigeon can then be released from a place it has never been hundreds of miles away from "home" and find its way back. Pigeons generally cannot fly at night, resuming their flight "home" the following day at dawn. Today, a distance of 500-600 is the upper limit of the many of the birds' homing ability (though some can "home" from up to 1,000 miles away). Thus, in wars, pigeons were generally "homed" at a command center or mobile base for a week or more and then could be released from the front to relay a message attached to them back to the base.

ii Unless otherwise cited, most information reported below regarding the use of homing pigeons in warfare comes from the book *They Had No Choice: Racing Pigeons at War*, by Garry McCafferty.

iii Pigeons occupy a rather prominent place in the history of experimental psychology, thanks largely to Skinner. He and his followers trained pigeons to peck a variety of keys or objects on differing reward schedules, and to perform other tasks for rewards, to demonstrate the principle that *all sentient beings* choose and persist in those activities that offer rewards and cease or avoid those activities that are not rewarding. Many scientists have tested pigeons' abilities of memory and pattern recognition as well.

iv Unless otherwise cited, most information reported below regarding pigeon racing comes from the book *Racing Pigeons*, by David Glover and Mary Beaumont.

v How do such long-distance races work? This is not a race that is watched in the traditional sense of most spectator sports. To be able to participate, fanciers' lofts must be within an established radius. For example, in 400-mile races held by New Yorkers, only those who live in the greater metropolitan area may participate. The distance from the point of liberation to one's loft is measured. Those eligible jointly ship their race birds to the starting point. The pigeons are liberated and navigate their way home at speeds of up to 60 miles per hour. When the pigeon arrives home, the owner must be ready to trap it and either record the time into a tamper-proof manual clock or scan an electronic leg band on the pigeon into an electronic clock. Each clock must then be brought to a race club where officials collect them and record each time. The first pigeon home is not necessarily the winner, because the distance to each loft is different. Thus, the time is divided by distance to get the speed of the pigeon. The pigeon with the fastest average yards per minute is the winner.

vi Much of the information reported below about flying pigeons comes from the book *Aloft*, by Stephen J. Bodio.

vii Though a less popular candidate than other birds such as parrots or canaries, pigeons have and do take the role of *pet.*

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