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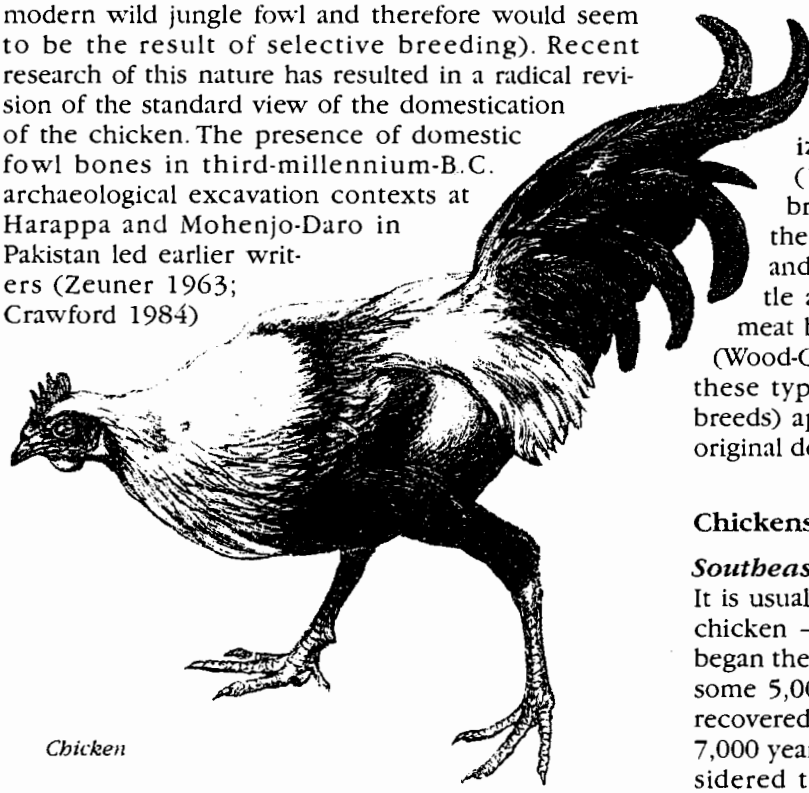
II.G.6 Chickens

Origins

The chicken *(Gallus gallus* or *Gallus domesticus)* is generally considered to have evolved from the jungle fowl *(G. gallus),* which ranges throughout the area between eastern India and Java. Within the nomenclature, *G. domesticus* is normally used by scholars who believe in a polyphyletic origin for the domestic chicken (from *G. gallus, Gallus sonnerati,* and *Gallus lafayettei*), whereas *G. gallus* is used by those who support a unique origin from the various subspecies of wild *G. gallus.* Debates regarding the origin and spread of the domestic chicken focus both on its genetic basis and the "hearth area" of its initial domestication.

The osteological identification of domestic chickens has been made both on a contextual basis (i.e., the occurrence of *Gallus* bones outside of the birds' normal wild range) and on osteometric grounds (i.e., the occurrence of bones that are larger than those of modern wild jungle fowl and therefore would seem to be the result of selective breeding). Recent research of this nature has resulted in a radical revision of the standard view of the domestication of the chicken. The presence of domestic fowl bones in third-millennium-B.C. archaeological excavation contexts at Harappa and Mohenjo-Daro in Pakistan led earlier writers (Zeuner 1963; Crawford 1984) to assume that the chicken was first domesticated in this area. However, in 1988, B. West and B.-X. Zhou presented archaeological data showing domestic chickens to be present at China's Yangshao and Peiligan Neolithic sites, which dated from circa 6000 to 4000 B.C. As a consequence, because wild forms of *Gallus* are entirely absent in China, and as the climate would have been inimical to them in the early Holocene, it seems likely that chickens were domesticated elsewhere at an even earlier date. In the absence of evidence from India, Southeast Asia (i.e., Thailand) has been put forward as a likely hearth area (West and Zhou 1988).

Such a hypothesis seems to square nicely with some recent research on the genetic origins of chickens. In the past, a polyphyletic view often predominated because of the phenotypic diversity of modern chickens (Crawford 1984). But quite recently, A. Fumihito and colleagues (1994) have shown convincingly that all modern chicken genes can be derived from the subspecies of *Gallus* found in northeast Thailand. This demonstration provides a geographical origin for the chicken that harmonizes with the archaeological data and, at least for the moment, disposes of the argument for polygenesis.



Chicken

Uses

Although chickens are strongly associated with egg production in European and neo-European cultures, elsewhere they have very different associations. In much of Southeast and East Asia they have been bred both for fighting and as decoration; in Japan, for example, there is little evidence for the exploitation of chickens as food until the nineteenth century. On the basis of the present locations of these specialized breeds, I. G. Moiseeva and colleagues (1996) have postulated three centers of breed origin, to which we would add two further categories for highly productive egg layers and meat-egg compromise breeds. Both Aristotle and Pliny referred to distinct fighting and meat breeds at the beginning of the Christian era (Wood-Gush 1959). However, the origin of most of these types (save the intermediate and egg-laying breeds) appears to have been near the zone of their original domestication.

Chickens and Geography

Southeast Asia and Oceania

It is usually conceded that the Austronesians had the chicken – along with the dog and pig – when they began their epic voyages of colonization in the Pacific some 5,000 or more years ago. Chickens have been recovered from Hemudu in Southeast China, dating to 7,000 years ago, and such settlements are usually considered to be ancestral to the main Austronesian

expansion (Bellwood 1995). Although direct evidence is lacking for chickens in the Austronesian area until much later, linguistic evidence argues that the fowl traveled with the Austronesians (Zorc 1994).

Central Asia

The chicken has been well documented osteologically from the Harappan civilization of the Indus Valley, where it was introduced by 2500 B.C. (Zeuner 1963). However, in view of both archaeological and linguistic evidence, it appears that chickens did not spread through India but rather around it - heading northeastward from China and through central Asia north of the Himalayas (Nishi 1990; Moiseeva et al. 1996). The fowl was certainly introduced into Iran about this period; Zoroastrian literature makes extensive reference to its crowing at dawn (Wood-Gush 1959).

Linguistics can complement the results of archaeology in tracking the route of the chicken's diffusion. If words for chicken, cock, and chick are compiled for the Old World, some intriguing patterns emerge. There are two extremely widespread roots, ka(C)i and tax(V).[1] The latter is spread from Korea across central Asia to the Near East, North Africa, and south to Lake Chad. This suggests not only that the chicken diffused westward from China as far as central Africa, but that it did so after the principal language phyla were established, as the vernacular terms form a chain of loanwords.

Europe

The discovery of bones - collated by West and Zhou (1988) - in central Asia seems to indicate that the chicken had reached the borders of Europe by 3000 B.C. The earliest finds come from Romania, Turkey, and Greece, where there are at least eight late Neolithic and early Bronze Age sites from which bones have been dated to the third millennium B.C. These finds, contemporary with or slightly earlier than those of the Indus Valley, appear to demonstrate that the initial dispersion of the chicken from Southeast Asia effectively bypassed the Indian subcontinent. This conclusion would seem to be further borne out by "culturally dated" fourth-millennium-B.C. finds in the vicinity of Kiev (Ukraine) that were published in the 1950s, although a great deal of research remains to be done in the area.

The subsequent rate of dispersion of the chicken in Europe appears to have slowed substantially, with most early western and northern European bone discoveries dated to the middle to late first millennium B.C. Indeed, F. Hernandez-Carrasquilla (1992) has sounded a note of caution by refuting all pre-first-millennium-B.C. identifications from Spain as intrusions or errors in attribution and has once again credited the Phoenicians with the domestic fowl's introduction into Iberia.

Chicken domestication became well established in Europe during the Iron Age, and by the time of the Romans, superior breeding or animal husbandry strategies had resulted in substantial size increases in the domestic fowl (Thesing 1977). During the medieval period, the dietary importance of chickens increased relative to that of mammals, with chicken rearing in towns becoming increasingly common (Astill and Grant 1988; Benecke 1993). Unfortunately, chickens were often left to forage amid domestic waste, and less labor-intensive poultry-rearing techniques resulted in a general size reduction for domestic fowl (Thesing 1977), although birds bred in rural areas may have fared better. In Europe, there is little evidence for a great diversity of breeds until the late Middle Ages, or even later: in parts of the Netherlands and Poland, however, there is osteological evidence for both a small and a large breed of chicken in early medieval times (Benecke 1993).

Southwestern Asia and North Africa

In the Levant, there are only a few early chicken identifications, with the earliest finds, from Tell Sweyhat in northern Syria, dating to the late third millennium B.C. (Buitenhuis 1983). The bird does not appear to have been common further south until the first millennium B.C. (West and Zhou 1988). A seal found at Nimrud, dated to 800 B.C., shows a cock (Zeuner 1963). One of the uses of early chickens in this region is indicated by the seventh-century-B.C. representation of fighting cocks on seals and potsherds from Israel/Palestine (Taran 1975).

A much-reproduced painted limestone fragment from the tomb of Tutankhamen clearly illustrates a cock, and several other representations suggest the occasional presence of fowl as exotics in Egypt during the New Kingdom (1425-1123 B.C.) (Carter 1923; Darby, Ghalioungui, and Grivetti 1977, 1: 297 ff.; Crawford 1984). However, they then disappear from the graphic record until about 650 B.C., after which they are represented in abundance (Coltherd 1966). Osteologically, despite several early misattributions, the earliest chicken bones found in Egypt date only to the beginning of the Greco-Roman period (332 B.C. to A.D. 200) (MacDonald and Edwards 1993). It would thus appear likely that the chicken was at first imported into Egypt as an exotic menagerie and fighting bird and gained economic importance only during the late first millennium B.C. - in Ptolemaic times.

Sub-Saharan Africa

Although chickens are central to African culture throughout the continent, the morphology of local fowls remains undescribed, and the routes by which they entered the continent - as well as the dates when that took place - remain poorly known. Archaeologists have tended to favor a rather recent date (MacDonald 1992, 1995; MacDonald and Edwards 1993), whereas linguists have argued for much earlier dates, based on the degree of the embedding of

words for chicken (Johnston 1886; Manessy 1972; Blench 1995; Williamson in press).

Osteological evidence of chickens in Africa has become increasingly abundant during the 1990s. The earliest known remains are from the middle of the first millennium A.D., with finds from Mali (MacDonald 1992), Nubia (MacDonald and Edwards 1993), the East African coast (Mudida and Horton 1996), and South Africa (Plug 1996) all dating to this period. No earlier remains are known as yet, and archaeozoologists hypothesize that chickens most likely entered Africa either via the Nile Valley or through an early Greco-Roman east-coast trade between about A.D. 100 and 500. A trans-Saharan introduction (at an earlier date via Phoenician Carthage), however, cannot be excluded.

The linguistic evidence rather strongly suggests multiple introductions: across the Sahara, via the Berbers, on the east coast, and, possibly, a separate introduction to Ethiopia via the Red Sea coast. In addition, early reports of chickens in Mozambique suggest black-feathered types, resembling those in India.

Because, in most cases, African chickens were left to find their own food and were allowed to mate at random, there are no significant African breeds (Kuit, Traore, and Wilson 1986; MacDonald 1992).

The New World

One of the most intriguing controversies in the history of chickens is the question of whether they were present in the New World in pre-European times. Both G. F. Carter (1971) and R. Langdon (1990) have argued strongly that they were, at least in parts of the West Coast. Linguistics (in the sense that chickens do not have names borrowed from European languages), morphology (the distinctive blue eggs of some New World breeds, otherwise known only from China), and the improbable speed of transmission inland that would be required by the assumption of a European introduction all suggest a pre-Columbian introduction from Asia (see also Carpenter 1985). Against this theory, however, is the fact that no undisputed early chicken bones have ever been found in a mainland site. Langdon (1990) has cited reports of blue-egg fowls on Easter Island, which he considers to strengthen evidence of trans-Pacific contact with the South American mainland.

Future Understanding

We know very little about past developments in five geographical areas that are crucial to understanding the domestication and subsequent spread of the domestic fowl: Thailand, Russia/Ukraine, the Indian subcontinent, Southwest Asia, and sub-Saharan Africa. It is crucial that specialized archaeozoologists examine temporally relevant avian skeletal materials from these zones and that they be well apprised of potentially confusing local wild taxa - especially birds such as guinea fowl, pheasants, and larger francolins - and the criteria for their differentiation (MacDonald 1992).

Complementary results can be obtained from more detailed genetic work on traditional chicken breeds using both DNA and phenotypic characters. Although the chicken is usually considered to be well known, compilations such as those by Ronan Loftus and Beate Scherf (1993) show that there are many poorly described breeds of chicken on the verge of extinction that are kept by traditional societies. A broader view of the origins and distribution of chicken breeds in the world should help us to understand more clearly their role in both subsistence and the interaction of human cultures.

Roger Blench and Kevin C. MacDonald

Note

1. The authors are grateful to Zev Handel and James Matisoff for providing unpublished documentation of chicken names in Sino-Tibetan languages.

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II.G.7 Chicken Eggs

Hickety Pickety, my black hen
She lays eggs for gentlemen
Gentlemen come here every day
To see what my hen doth lay

Anonymous

History

Eggs from many species of fowl have doubtless been consumed since the very beginning of humankind's stay on earth. In historical times, ancient Romans ate peafowl eggs, and the Chinese were fond of pigeon eggs. Ostrich eggs have been eaten since the days of the Phoenicians, whereas quail eggs, as hard-cooked, shelf-stable, packaged products, are now featured on many gourmet food counters in the United States and Japan. Other eggs consumed by various ethnic groups include those from plovers, partridges, gulls, turkeys, pelicans, ducks, and geese. Turtle eggs have been highly prized, and in starvation situations, any eggs, even those of alligators, have been relied upon.

In this chapter, however, only avian eggs (and these mostly from the chicken) are discussed. Avian eggs in themselves constitute a huge subject: In 1949, A. L. Romanoff and A. J. Romanoff published a book in which they attempted to compile all the facts known, at the time, about the eggs of birds. It contained over 2,400 reference citations.

It is almost obligatory in writing about eggs to first deal with that age-old question: Which came first, the chicken or the egg? Those who believe in creationism rely on holy books, like the Bible, which specify that animals were created. Thus, the chicken came first. But, as Harold McGee has pointed out, the eggs of reptiles preceded by far the evolution of the first birds; consequently, "[e]ggs . . . are millions of years older than birds." He added that "*Gallus domesticus*, the chicken, more or less as we know it, is only 4 to 5 thousand years old, a latecomer even among the domesticated animals" (1984: 55).

McGee placed the ancestors of *Gallus domesticus* (as the Romans named it) in Southeast Asia or India.