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State collapse in Egypt in the late third millennium B.C.

State collapse first occurred in Egypt at the end of the Old Kingdom, ca. 2181 B.C., after the death of Pepi II of Dyn. 6, who was supposed to have reigned for about ninety years. This was collapse of centralized control of a very large territorial state which stretched for over 1000 km in length along the lower Nile. The result of this collapse was political fragmentation (see Cowgill 1988: 256) during what is called the First Intermediate Period. This was certainly not the end of Egyptian civilization (see Yoffee 1988: 18), and centralized control was restored through warfare about 120 years later by founding kings of the Middle Kingdom.

The strongest evidence for the collapse of centralized control at the end of the Old Kingdom is from various king lists. Although Manetho's Dyn. 7 in which seventy kings ruled for seventy days is now thought to be fiction (Kemp 1983: 112), at least thirty-one kings are listed in later king lists for the dynasties of the First Intermediate Period. These dynasties overlapped in part chronologically and represent power bases in different parts of the country.

There is a great deal of textual evidence relating to the First intermediate Period, but there is also archaeological evidence for political fragmentation and a great decline of royal power in the north. After Pepi II there is a lack of large pyramid monuments. The great uniformity that is seen in Old Kingdom pottery found throughout Egypt ends, and "at least two distinct pottery regions emerge" (O'Connor 1974: 27). Provincial tombs become more "varied in form", and are decorated in art of the technically inferior 'Intermediate Style' (O'Connor 1974: 23–24), unlike the court–centered art of the Old Kingdom.

Climatic change is one variable often cited as a reason for the collapse of the Old Kingdom. Egypt is truly the gift of the Nile, as Herodotus wrote, and pharaonic civilization through over 3000 years was supported by the economic base of irrigation agriculture, with large surpluses controlled by the state. State ideology stressed the god–king's role in guaranteeing (agricultural) posperity through the proper propitiation of the gods in cult centers.

The so–called Neolithic Wet Phase, during which time parts of the Egyptian Western Desert were inhabited by groups practicing mixed forms of subsistence, was coming to an end during the third millennium B.C. – when the Egyptian state of the Early Dynastic period and Old Kingdom was in existence. Rains in the

deserts to either side of the Nile decreased and then for the most part ceased, and the grasslands or savanna vegetation also came to an end. Butzer (1976: 26–27) has documented the disappearance of several species of wild mammals throughout the course of the Old Kingdom, in part due to human predation and use of the Nile valley for agriculture, but also in part due to deterioration of desert grazing. Pharaonic agriculture was certainly a response to the floodplain ecology of the lower Nile *after* the Neolithic Wet Phase, which was episodic. Incipient agriculture in Egypt, though, occurred during more moist conditions in general.

A study by Butzer et al. (1972) has established a "general parallelism" of high and low lake levels in East Africa and the Chad Basin from 5000 B.C. to the present. Long–term trends of wet and dry intervals are seen which correspond to episodes of high and low Nile discharge. Lake levels and stream discharge in East Africa were severely reduced after 2700 B.C., corresponding to a drought that may have occurred at the end of Dyn. 1 in Egypt, with wetter conditions in East Africa beginning ca. 1850±50 B.C., corresponding to unusually high Nile floods known in the later Middle Kingdom (Butzer 1976: 33).

Short–term climatic fluctuations in northeast Africa, resulting in lower and higher than average Nile flood levels, have certainly been documented in recent times. As most of the waters of the Egyptian Nile during the maxima (flood season) originate in highland Ethiopia, changes in the summer rains in Ethiopia would seem to directly effect Nile flooding, but this is a complex pattern (see Foucault and Stanley 1989). Reasons for variability in the monsoonal Ethiopian rains are too complex to document here (see Hassan 1981), but Butzer (1971: 159) states that changes in lake levels and stream discharge in East Africa over the past several decades are overwhelmingly a function of precipitation changes.

East African climatic belts "range from tropical and humid to warm and dry", and "have oscillated north and south during the late Pleistocene and Holocene" (Hamroush and Stanley 1990: 264). Nile sediments reveal evidence of such oscillations of climatic belts. Stanley has analyzed borings taken in the northwestern Delta in terms of the contributions of the Blue Nile and Atbara rivers, which originate in highland Ethiopia, and the White Nile. Distributions of trace elements in the sediments from highland Ethiopia, with abasaltic terrain, are different from those in sediments of the White Nile, which drains through igneous and metamorphic terrains (Hamroush and Stanley 1990: 264–265). The radiocarbon–dated cores also reveal information about local geomorphology. More humid conditions existed 7500–5000 BP, and seasonal floods "resulted in high fluvial discharge", but by 5000–4500 BP the climate became more arid and there was "a diminished supply of river–derived sediment" (Chen, Warne and Stanley 1992:556).

The climatic data for Egypt in the third millennium B.C. suggests more arid conditions than during the fourth millennium B.C., when complex society and the early state first arose. Although the climatic data suggest aridity, this is a long–term trend, with heightened aridity during the second half of the third millennium B.C. (Butzer 1976: 31). For more finely tuned data in terms of years B.C., the cultural data must also be reviwed.

In 1971 Barbara Bell, an astronomer at Harvard, published an important study of texts relating to the First Intermediate Period. According to Bell (1971: 3), these texts document a crisis in which there was a severe failure of the annual Nile floods. It is questionable if all of these texts can be interpreted in terms of real historical events or more general literary allusions (Butzer 1976: 29), and the motivations for recording such texts may in part be due to political propaganda of the Middle Kingdom. However these texts are to be understood in a specific sense, they describe a state of civil disobedience and strife, and fragmentation of political power in the north and south. There are also references to famine and very low Nile waters. The vivid descriptions of lawlessness, vandalism, and violence in the "Admonitions of Ipuwer" are even thought to be the accounts of an eye witness (Bell 1971: 11). But even if there are problems in interpreting the meanings of the First Intermediate Period texts, especially in terms of when and why they were written, taken as a whole, these texts are probably to be understood as the "result of an extreme trough in the cylcic pattern of Nile variation" (Kemp 1983: 181).

Bell suggests that there were sociopolitical problems that were exacerbated by prolonged famine. Such famines (as a result of failure of rains over central and east Africa) were the crises "that shattered a weakened central government utterly unable to cope with the problem" (Bell 1971: 19). It can probably be argued that a highly centralized state with coercive power over hundreds of thousands, such as existed during Dyn. 3–4, was not intrinsically a stable condition, but this does not *explain* anything. For explanations of state collapse at the end of the Old Kingdom, we must look not only at evidence of climatic change, but also for sociopolitical pathologies which caused major economic problems for the state. An environmental determinist explanation of state collapse ignores other sociopolitical factors, and is too simplicistic. Although there may be factors in state collapse in Egypt at the end of the Old Kingdom which may be seen in the collapse of other (non–Egyptian) states, the mechanisms of state collapse in Egypt differ from one intermediate period to another (there were three major periods of state collapse in Egypt), and I do not think that a nomothetic explanation for state collapse, such as Tainter (1990: 203) suggests, is possible.

One reason that has been given for the economic collapse of the Old Kingdom is that as more and more estates of land were set aside to support the cult centers of dead kings (i.e., pyramid complexes), there was a decline in state income through a widening circle of inheritance of crown–owned lands. Such a condition may be reflected in the smaller and poorer built royal pyramids of Dyn. 5 and 6. Although Helck (1954) believes that the estates belonging to royal cult centers were tax exempt, Kemp (1983: 176) thinks this is not clear. During Dyn. 5 royal constructions actually increased, and kings built both sun temples *and* their own pyramid complexes. This may be interpreted as increasing royal control of the sun cult, as opposed to increasing power of the priests of Re and a dissipation of royal resources. The long–term *ideological* justification of pyramid and temple construction, however, may have been difficult if the god–king could no longer guarantee agricultural prosperity and stability.

A great proliferation of bureaucrats is seen in the many private tombs that were constructed during Dyn. 5 and 6, as well as in inscriptional evidence of titles. This has also been interpreted as a widening circle of wealth outside of the royal family compared to Dyn. 4 when the Giza pyramids were built. Indirectly, then, crown resources were going into the construction of more mortuary facilities, and there is no evidence of royal projects that would have increased cultivated land, such as the huge reclamation project in the Fayum by early Middle Kingdom kings. That the kings of the Old Kingdom were unresponsive in terms of state supported agricultural projects is probably true, but coercive power of the state during the Old Kingdom was directed to huge construction projects. The great genius of Egyptian bureaucracy was its ability to organize, feed, house, and clothe thousands of workers for construction projects.

The proliferation of private tombs during Dyn. 5 and 6 has also been cited as evidence for declining state resources in the later Old Kingdom. In a comparative study of tomb sizes, Kanawati (1977), however, argues that as more officials were incorporated into the state bureaucracy, as a result of family growth and offices that were inherited, the resources for tombs of each official declined. Lower and middle rank officials gradually lost the income to build tombs.

The proliferation of tombs in the provinces later in the Old Kingdom has also been cited as evidence for decentralization of the state bureaucracy (and gradual impoverishment of the central government), which contributed to state collapase and political fragmentation. If decentralization was occurring one would expect a greater richness in the tombs of high officials in the provinces, and this is not the case (Kanawati 1977: 70).

Kanawati (1980) also documents government reforms that occurred in the bureaucracies of Dyn. 6, which is also an argument against a monolithic state that could not respond to new socioeconomic problems. But the very long reign of Pepi II, from age six to one hundred, may have been a major factor in the collapse of the centralized state after his death in 2181 B.C. Corruption and dissolution of political power must have taken place during the longest reign in Egyptian history, according to king lists, and Kanawati (1977: 77) cites (historical and textual) evidence for dissatisfied officials, inefficient administration, and dynastic trouble in terms of royal succession at the end of Dyn. 6. As the central government weakened, alternative administrations in the provinces could have exerted strong centrifugal pressures (Trigger 1984: 107).

Invasion has often been cited as an explanation for state collapse, but there is no evidence of any large–scale invasions in Egypt at the end of the Old Kingdom. Lower Nubia was controlled by Egypt during the Old Kingdom, but Egypt lost control of this region during Dyn. 6. The fort at Buhen at the second cataract was abandoned, and the earliest evidence of the C–Group culture is found in Lower Nubia during the late Old Kingdom. Records of Egyptian expeditions into Nubia during Dyn. 6 describe local peoples who were clearly a military threat. The movement of peoples into Lower Nubia may reflect increasingly arid conditions in the deserts to either side of the Nile, but it also reflects loss of Egyptian control in a region it had held for about 900 years to the exclusion of all other cultural groups.

Nubia was the source of much Egyptian gold, but it was also an important node in the trade network of exotic materials from father south, such as incense, ebony, and ivory. Since foreign trade was a royal monopoly in Egypt, the loss of income from this trade would also have decreased state revenues, and there is archaeological evidence that imported materials, such as copper, ivory, turquoise, and lapis lazuli, are rare or absent in graves of the First International Period (O'Connor 1974: 27). As a result of the loss of Egyptian (military) control of Nubia, a powerful competitor arose during the First Intermediate Period near the third cataract – the Kingdom of Kerma, which is the earliest state in Africa south of Egypt.

Most important to the income of the Egyptian state was cereal agriculture, and "the economic history of Egypt was closely dependent on the Nile and its behavior" (Butzer 1984: 111). Butzer (1976: 83) estimates that the population of Egypt rose from .87 million in 3000 B.C. to 1.6 million by 2500 B.C. This greatly increased population would have caused stress on the agricultural resources if there were any perturbations in the system, which there clearly were later in the Old Kingdom. Humans were not the agents of environmental degradation at the end of the Old Kingdom, for the floodplain was renewed every year by new deposits of silt. But lower or shorter Nile floods would mean decreased areas under cultivation. For example, a record low flood 2 m below average in A.D. 1877 decreased the cultivated land in Egypt by 35% (Butzer 1984: 105).

Although it is certain that the state of Dyn. 4 controlled vast agricultural resources at a time when the Giza pyramids were built, this clearly was not the case later in the Old Kingdom. How the state managed and redistributed its stored wealth is an important problem. There is not much evidence of associated storage facilities in Old Kingdom temples, as there is for the New Kingdom, but Giza must have had vast storage facilities that are probably covered today by the modern city of Giza and the rubble from disassembled pyramid contruction ramps – and thus are not easily excavatable. The major state construction projects during the Old Kingdom were in the Giza/Saqqara region, and this is where one would expect the centralized storage facilities to be. A redistribution network throughout Egypt maay not have been well developed during the Old Kingdom, which would have created problems for the state later given the evidence of widespread famine.

Possibly the earliest evidence of famine in Egypt comes from reliefs of the pyramid complex of Unis, the last king of Dyn. 5, but the centralized state did not collapse until about 200 years later. The government reforms that Kanawati (1980) documents may have been responses to such disasters which were temporarily successful. In the long–run, however, such reforms were not successful in reversing economic stress because of sociopolitical pathologies of a weakened central government.

All of the Egyptian evidence – archaeological, textual and climatic – point to disastrously low Nile floods toward the end of the Old Kingdom, but some of the sociopolitical pathologies that weakened centralized control of the state at this time were not directly related to environmental problems. The unified state of the Middle Kingdom arose during conditions of great aridity and low Nile floods, and

is an example of a successful response to such adverse climatic conditions. Environmental stress of low and/or short Nile floods undoubtedly caused major problems for the state of the later Old Kingdom, but some sociopolitical pathologies were well developed by the time when there is evidence of famines. The result was a weakened central government to the point where collapse seems inevitable.

Gradual decentralization of economic control and later mismanagement seem to be the major causes of collapse of the centralized state at the end of the Old Kingdom. State income diminished with decreasing foreign trade and fewer agricultural estates owned by the crown. Eventually the centralized state lost its ability to marshal resources for large public works projects (i.e., pyramids). Given environmental problems of increasing aridity and lower Nile floods, the state was even unable to meet the basic subsistence needs of many of its subjects, but it was probably not organized to coordinate any large–scale redistribution of food. Political instability was exacerbated by the very long reign (90+ years) of Pepi II at the end of Dyn. 6, and provincial government probably became more powerful at this time. That a centralized state with remarkable cultural achievements had been in existence up to this point for about 800 years is a tribute to its long–term organizational accomplishments.

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