[Extrait du *Bulletin de la Société de Géographie d'Égypte*, t. XXXIII]

REMARKS
ON THE GEOGRAPHY OF SETTLEMENT
IN THE NILE VALLEY DURING HELLENISTIC TIMES

BY

KARL W. BUTZER

Introduction.

The Hellenistic (Ptolemaic-Roman-Byzantine) period of Egyptian history embraces a time span of over a millenium. The beginnings of contact with the Greek world date back to the founding of Naucratis by the Miletians, apparently during the reign of Pharaoh Amasis (578-525 B. C.), and Greek mercenaries figured prominently in the wars of the 26. Dynasty of Sais and onwards, until the close of the Ptolemaic period. Factories such as at Tanis and Daphnae were founded by Hellenic merchants so that even before Alexander succeeded the Persian satrap at Memphis in the autumn of 332 B. C., ancient Egyptian culture had been exposed to foreign elements almost three centuries. The succeeding millenium until the Arab conquest under Amr ibn al-As in A. D. 639-641 represents a curious span of Egyptian history that witnessed the gradual transition from the ancient dynastic Egypt to the modern islamic Egypt. Thus although the Ptolemaic-Roman-Byzantine period is superficially a unit, characterized by the introduction, partial success, eventual rejection and decay of Hellenism, it consists, fundamentally, of a diversified phase of transition, of subtle evolution from the ancient to the modern. Just as a good case can be made for assigning the Ptolemaic period as an appendage to dynastic Egypt, so could one consider the Coptic era a full-fledged precursor to modern Egypt. In the intervening three and a half centuries of Roman rule to the reign of Constantine A. D. 323-337 considerable changes had taken place, of which, from the geographical point of view, probably the most significant was the disappearance of the *nomes*.

In attempting this historic-geographic discussion of the salient factors of the geography of settlement between 332 B. C. and A. D. 641 we are then not treating a coherent period of basic uniformity. The remarks made here are by no means designed to be exhaustive, we have merely attempted, for the first time, to analyze the far-reaching changes of the period, be they administrative, economic, social or physical, in as far as they concern the geographer, and from the geographer's perspective. There will obviously be many an error or omission in detail or in interpretation. But if the suggestions so offered may stimulate further and more exhaustive research they will have served their purpose. For practical reasons the investigation has been limited to Middle and Upper Egypt, with which the writer is most familiar, specifically from the apex of the Delta to the region of the First Cataract.

The source materials are manifold. Most complete and illustrative are the varied literary sources, ranging from an innumerable collection of Greek and Coptic papyri to invaluable descriptions of the classical authors. This material is adequately complemented by the archaeological evidence, and to a somewhat lesser degree by a limited amount of geological evidence. Some of the outstanding basic literary references are E. Amélineau's *La Géographie de l'Egypte à l'Epoque Copte* (1893), K. Wessely's *Topographie des Faijum in Griechischer Zeit* (1904), and J. Ball's *Egypt in the Classical Geographers* (1942). The archaeological evidence has been made readily accessible in B. Porter and R. L. B. Moss, *Topographical Bibliography of Ancient Egyptian hieroglyphic Texts, Relief and Paintings* (1927-1951), and first contributions to the geological evidence have been made by G. Caton-Thompson and E. W. Gardner (1929, 1934) and K. W. Butzer (1959, 1960).

Population Density and the Significance of the Greek Colonies.

The Ptolemaic-Roman-Byzantine epoch was essentially one of foreign domination, at least after the Roman conquest in 30 B. C. when Egypt was reduced to a province ruled from abroad. Even though of foreign blood the Ethiopian dynasts of the 25. Dynasty (715-656 B. C.) and the Macedonian dynasts after 323 B. C. exercised a personal rule in

the interest of public welfare and prosperity. And they considered themselves as legal successors of the pharaohs, doing lip hommage to Egyptian customs and institutions. The enlightened rule of the earlier Ptolemies, whose economic policy was «to accumulate the maximum amount of wealth, to incur the minimum of expenditure» (C. Préaux 1939), brought a high level of material prosperity to Egypt comparable with that of the 26. Dynasty[1], or even with some of the more flourishing phases of the New Kingdom.

Although there are no official census records available for any of the periods under consideration, several literary sources allude to the great population of the country. One need pay no special attention to the remark of Theocritus, repeated by Diodorus (I. 31.7), that there were 33,333 towns in Egypt under Ptolemy I Soter (323-285). But Diodorus continues that (I. 31-8) the population of old was about 7,000,000 and that it remained so down to his day[2]. A little more than a century later Flavius Josephus (II, 16, 4, 385) gives the population of Egypt with 7,500,000—exclusive of Alexandria, whose free population alone according to Diodorus (XVII, 6, 52) was at least 300,000. This estimate of Josephus was in good possibility calculated from head-tax records or taken from population lists. It does therefore have a certain reliability. As such it would seem that the population density achieved in the Graeco-Roman period was not rivalled again until after 1882 (cf. P. Jouguet 1911, p. 44). In the intervening centuries the population may have been as low as 2,000,000 at times.

The archaeological evidence supports this supposition very strongly, for the settlement remains and cemeteries of the Hellenistic period preserved on the edge of the desert are simply unlimited and outweigh the sum total of older and younger remains by a total of several to one (cf. W. Kaiser and Butzer, 1960). This is understandable as a response

---

[1] For what it is worth, Herodotus (II, 177) states that there were not less than 20,000 inhabited cities (and villages) in Egypt during the reign of Amasis.

[2] Diodorus visited Egypt between 60 and 56 B. C., and had probably completed his *Library of History* before 30 B. C. The version of the text adopted at this point has the authority of such specialists as E. Meyer, U. Wilcken and P. Jouguet.

to the government policy of colonization of the marginal lands, amply testified by literary sources and discussed further below. Another basis of confirmation is provided by the record of villages preserved from the Fayum and analyzed by Wessely (1904). The texts record 89 towns and villages there during the Ptolemaic, 141 during the Roman and 198 during the Byzantine period. Obviously these represent only a fraction of the extant villages, depending upon the completeness of the literary record. Yet the reliable catastral survey of A.D. 1315 noted somewhat less than 100 villages in the Fayum, the French survey of 1799-1800 only 69. Accepting the notable density of the population, which is confirmed by most classical authors, the dualism of the population must next be considered.

As mentioned, Greek colonization, commercial enterprise and mercenary activity in Egypt had a tradition of almost three centuries before the arrival of Alexander the Great. This influence was however almost exclusively limited to Lower Egypt, in particular to the Delta, Memphis and Babylon, the site of Old Cairo. With the establishment of Ptolemy Soter a horde of mercenary Greeks, Macedonians, Persians and hellenized Asiatics were settled in Egypt, while Greek scientists, technicians and administrators were invited to participate in the land-reclamation projects or the establishment of a civil-service bureaucracy on the Greek model. The numbers of mercenaries who accompanied Ptolemy Soter to Egypt can hardly have exceeded 25,000, if we consider that Alexander's army even at Gaugamela numbered only 7000 cavalry and 40,000 foot soldiers. In other words, the numerical position of the Greek-speaking population, despite later immigration, and a limited absorption of Egyptians, must always have been insignificantly small in comparison to the great mass of the Egyptian population, probably less than 2 %. Their importance was however out of all proportion in that they formed the core of the administration throughout the country, and that the bulk of the Greeks were settled in a few small urban centers and rural enterprises.

There were three self-governing Greek cities in Egypt meriting the term *polis,* the older town of Naucratis, the new city of Alexandria founded by Alexander in 331 and the town of Ptolemais (el Manshah) founded

by Ptolemy Soter a generation later. Both of the latter at least were founded near or on the sites of older indigenous villages. Both of these were laid out on a rectangular grid pattern, Ptolemais probably being modelled on Alexandria (Jouguet 1911, p. 7). The Greeks of these cities were the only full-fledged citizens of the country, they were autonomous—although effectively under royal control, and had their own laws, which incidentally prohibited intermarriage with the Egyptians.

The remainder of the urban Greeks was scattered among the nome capitals or *metropoleis,* which although fair-sized towns, had little urban character and were probably overgrown villages. Here the Greek-speaking population lived in separate quarters, and although without full rights of citizenship—they had no franchise outside of the three *poleis*—attempted to preserve individual culture. Above all the *gymnasium* played the central core of their intellectual life. The Greek element was particularly strong in Arsinoe (Madinet el-Fayum), Hermopolis magna (Ashmunein), Lycopolis (Asyut) and Heracleopolis (Ihnasiya), but even here there was no popular assembly or senate, authority was vested in the hands of a royal appointee.

The rural population of foreign tongue in the Nile Valley consisted of mercenary colonies, whose members were allotted land, but remained liable to military service. These were however exempt from the *corvee,* which was apparently only imposed upon the rural Egyptians. The Macedonian mercenaries were mainly settled in large sections of the Fayum, although there were probably some settlements of this kind in different marginal lands of the Delta, and of the Valley in the nomes of Memphis, Cynopolis (Sheikh Fadl) and Thebes. These settlers in the country and in the villages did not maintain an exclusiveness as did those in the nome capitals; they intermarried freely with the natives from the beginning and very gradually were absorbed into the Egyptian population.

Elsewhere however the Egyptians were essentially treated as a conquered race, excluded from the army and higher administrative posts. They were subjected to periodic forced labour on public works, and generally were reduced to the status of tenants, employees, artisans, although members of the native aristocracy were more often admitted to higher

posts, both civil and military, in later Ptolemaic times. This dualism of a stratified society consisting of a foreign ruling minority and a governed native majority was reflected even in the law courts, Greeks and Egyptians were subject to different civil law codes and district law courts. Despite the mixed origins of the foreign population [1] the common language was the *koine* Greek, which was eventually adopted by the Jewish population as well. In Upper Egypt there were Jewish minorities at Elephantine since the 4th century, at various localities in the Fayum since the 3rd century B. C. Already at this date these small urban communities were particularly active in commerce and finance (Jouguet 1911, p. 18-22).

The Nomes as Economic Units.

From the early periods of the Egyptian kingdom the country had been divided into nomes or provinces. The role of the governor or nomarch was admittedly reduced in stature during the Ptolemaic period to that of a financial official and replaced in function by the *strategos,* originally a military commander, eventually *de facto* governor. Yet the nome remained the basic administrative, and simultaneously economic, unit of the country. The entire administration—political, judicial, fiscal—was concentrated in the nome capital (Jouguet 1911, p. 272 ff.). The central authority of the royal bank and above all the state granary, for storage of the produce exacted as taxation, was situated there. The royal estates, comprising the greater part of the arable land, were administered from here, and in Roman and later times the great landowners resided in the *metropolis*. And aside from being the administrative and economic core of the nome, whatever cultural life was associated with the temple priesthood or the gymnasia was concentrated here.

In a similar manner the major arteries of Egyptian commerce and traffic, the Nile, the Bahr Jusef, and possibly a few of the larger canals, were accessible solely through the official provincial port or harbour. Practically all of the provincial products, agricultural or industrial, were exported through the nome harbour (Jouguet 1911, p. 276-277),

[1] Thus even in the early Roman period Arsinoe had separate quarters for Greeks (Hellenes), Macedonians and Thracians.

which was a seat of the provincial customs. In other words the nome artificially regulated all economic enterprise into specific channels. In this fashion the nome capital and its harbour retained their significance through millenia, and there was little chance for other settlements, possibly with better location, to succeed them. Thus, we know the ancient Egyptian nome patterns remained almost stationary into Ptolemaic times. The traditional patterns and channels were so strong that even the major cemetery, the nome *necropolis,* remained at specific locations for millenia. In Table 1 the nomes, *metropleis,* ports and *necropoleis,* as they were in Ptolemaic times, are listed for Upper Egypt. To these may be added the Lower Egyptian nomes I. (Memphis), XII. (Letopolis = Ausim) and XIII. (Heliopolis).

In most cases the *metropolis* was situated on or very near the banks of the Nile, so that it played the role of its own harbour. The oldre nome capital of VIII., Abydos, and X., Aphroditopolis (Kom Ishqaw), were probably located on or near to the Sohag Canal, running from the Nile bend near Hammadi to Asyut in Islamic times. This canal was quite large, and possibly represents a former natural branch of the Nile as is the Bahr Jusef. After the founding of Ptolemais on the Nile by Ptolemy Soter, Abydos lost its ancient importance. Similarly Aphroditopolis, (which in later times very probably had another, Nile harbour near its *necropolis* at Qaw) was replaced as *metropolis* in Roman times by Antaeopolis (Qaw). This was very probably a case in which the port (or a site near by) replaced a *metropolis* situated in an economic backwater. Hermopolis was almost certainly served by an unknown port near Qulusna or more probably, el Roda, opposite the later founding of Antinoopolis. Temporarily Tanis on the Bahr Jusef may have served such a role too. The city of Antinoopolis was founded by the emperor Hadrian in A. D. 130 near the site of an older village Besa (archaeologically verified since the late 18. Dyn.), and detached from the Hermopolite Nome. We do know for example that the pilgrim Theophanes, travelling from Hermopolis to the Holy Land somewhere during the years A. D. 317-323, completed his travel preparations and embarked for Old Cairo at Antinoopolis (E. Kirsten 1959). Further downstream the port of Heracleopolis is not known for sure, as the position of the *metropolis* with respect to the

TABLE 1

The Upper Egyptian Nome Capitals, Harbours and Necropoleis during the Ptolemaic Period

Nome	Metropolis	Harbour	Necropolis
I.	Elephantine (later Ombos)	(Nile)	Kubet el Hawa, Aswan
II.	Apollonopolis magna (Edfu) ...	(Nile)	el Hassaiya
III.	Ilithyiaspolis (el Kab)	(Nile)	el Kab
IV.	Thebes (Luxor)	(Nile)	Qurna
V.	Coptos (Quft)	(Near Nile)	Quft
VI.	Tentyra (Dandara).....	(Nile)	el Marashda
VII.	Diospolis parva (Hiw)	(Nile)	Hiw
VIII.	Ptolemais	(Nile)	Abydos
IX.	Panopolis (Akhmin)	(Nile)	el Hawawish
X.	Aphroditopolis (Kom Ishqaw)..	(Canal) Qaw el Kebir?	Qaw (el Itmaniya)
XI.	Hypsele (Shutb)	(Near Nile)	Deir Durunka
XII.	Hierakon (near Abnub?)	(Nile?)	Deir el Gabrawi
XIII.	Lycopolis (Asyut)	(Nile)	Asyut
XIV.	Chusis (Qusiya)	(Near Nile)	Meir
XV.	Hermopolis magna (Ashmunein).	(on Nile? on Bahr Jusef : Tanis)	Tuna-el-Gabal
XVI.	Hebenu (Kom el Ahmar)	(Nile)	Beni Hassan
XVII.	Cynopolis (Sheikh Fadl).....	(Nile)	Sheikh Fadl
XVIII.	Hipponon (Ezbet Qarara)	(Nile)	Ezbet Qavara
XIX.	Oxyrhynchos (Bahnasa)	(Bahr Jusef)	Bahnasa
XX.	Heracleopolis magna (Ihnasiya).	(Bahr Jusef) Sidmant?	Sidmant-el-Gabal
XXI.	Arsinoe (Madinet el Fayum) ...	(Sidmant?) Lahun	Madinet
XXII.	Aphroditopolis (Atfih)	(Near Nile)	Atfih

Bahr Jusef is uncertain. During the first centuries A. D. (Ptolemy, *cf.* J. Ball 1942, p. 85 ff.) it was itself situated on the banks of the Bahr Jusef. At other times it may also have been served by Sidmant

el-Gabal, although that town at one period served the Fayum (Jouguet, p. 253-254) in place of Ptolemais harbour (el-Lahun).

The list in Table 1 in effect provides a list of the leading towns of the Nile Valley during the earlier Ptolemaic period, apart from the new towns founded in the Fayum. It also provides a framework of the patterns of settlement, differing somewhat from the present picture of mudiriyas and markazes. Some of the nomes have since been reduced to insignificance, so the nome capitals on the eastern bank of the Nile in Middle Egypt or those once situated on the Bahr Jusef. Instead new centers of population have replaced them, these all being situated on or near the western bank of the Nile.

Expansion of Rural Settlement in Ptolemaic Times.

Before embarking on the well-known land reclamation schemes of the early Ptolemies it may be well to outline the land tenure conditions of Egypt during this period, which are well summarized in M. Rostovtzeff (1941, p. 275-292). First and foremost was the royal land, in theory the king was the only landowner. The peasants were royal tenants, held by free leases. Although not serfs the lessees could not leave their holdings while agricultural operations were under way, and such peasants were at times arbitrarily moved to new marginal lands. A second category of land consisted of the temple estates, managed by the government for the benefit of the temple. The third class of land comprised the allotments to military settlers (*kleroi*) or to high officials (*doreai*). Although both types of holdings were for life only, the former tended to become hereditary as the attached obligation of military duty passed from father to son. At first good, arable was assigned, but with time the *kleroi* were of marginal land and conditional upon its being irrigated or drained and put under cultivation. The *doreai* very often also involved the obligation to reclaim inferior or derelict land. The last class, the so-called privately owned land amounted to smaller market-gardens, fruit groves or vineyards conveyed in hereditary leases. This was generally land not suitable for wheat growing and again meant an extension of the cultivable terrain.

The land tenure system of the Ptolemies was primarily directed toward an areal extension of the productive lands, and coupled with it were complex engineering and agricultural missions led by scientists and technicians from Greece and elsewhere. Outside of the marginal lands of the Delta and the Maryut, details are only known from the Fayum which obviously became the central core of the project initiated by Ptolemy II Philadelphus (285-246 B. C.) and continued by Ptolemy III Euergetes (246-221 B. C.). Smaller areas of marginal land were probably first put under the plough in different parts of the Nile Valley as well. Most of the lands concerned were however not abandoned land, rather higher-lying tracts not too readily available to unaided basin irrigation or poorly drained areas requiring drainage, flood-control and the like.

A similar large-scale expansion of rural settlement had been made in the Fayum during the second half of the 12. Dynasty (1991-1786 B.C.). By controlling the inflow of Bahr Jusef waters through the Hawara Canal Amenemhat III was able to drain an estimated 1100 km² of marshland (cf. A. Shafei 1941), although there is no reason at all to believe that he had the Bahr Jusef itself dug (Butzer 1959a, p. 72). In the second phase of land reclamation and rural expansion in the Fayum drainage only seems to have played a small part. According to Caton-Thompson and Gardner (1934), and Caton-Thompson, Gardner and S. A. Huzayyin (1937) the ancient Lake Moeris of the Fayum dropped from -2 m m.s.l. in 4. Dynasty times to *below* -13 m m.s.l. by 285 B. C., with a temporary halt at -11 m inbetween. The geomorphological evidence seems quite sound, and it remains to be proven that there was any 12. Dynasty stand at + 19 m m.s.l. The question has been raised why all pre-Ptolemaic townsites of the Fayum are located above 15 m m.s.l. Two very plausible explanations can be offered. Firstly that the annual inundations occasionally flooded the Fayum well above the major annual level of perhaps -13 m, so rendering the lowlying country poorly drained. The other explanation is that the irrigation waters did not suffice for the country far removed from the outlet of the Hawara Canal. This would be supported by the contention that Philadelphus reexcavated the silted up Hawara Canal (Caton-Thompson and Gardner 1934) as

well as by the analogous situation existing in the last century when no land was cultivated below the Om contour. This would support the hypotheses that insufficient Nile waters had access to the depression so limiting agricultural activity.

As it was Philadelphus lowered the level of the lake further by diverting most of its inflow into a highly complex system of irrigation canals. Two canals were led from the Hawara intake at high levels and led around the margins of the depression, towards the north via Philadelphia including the plains north of Bacchias and Karanis, and towards the south via Tebtynis to the el Gharaq area. A third canal at an intermediate level curved south of Itsa and el Minya past Theadelphia to the southwest corner of the Birket Qarun, where a large area around Dionysias (Qasr Qarun) was irrigated. Only then was the remainder of the waters spread out fanwise to the northwest from a focal distribution point at Arsinoe. In this way the northern, southern and southwestern margins, which have been abandoned since the 2.-4. centuries A.D., implied a one-time minimum enlargement of the cultivated land of the Fayum by 125 square kilometers. The desertion of these lands and their once thriving towns was mainly due to lack of water. This can be attributed to two causes, the silting and neglect of the higher-lying canals (Caton-Thompson and Gardner 1929), and the diminution of Bahr Jusef waters-probably coupled with lower Nile floods—after the 1. century A.D. (Butzer 1959a p. 71-72).

Another form of rural expansion in the marginal lands took place in western Middle Egypt, probably as a result of physical factors. For, in the area of the great belt of dunes extending from Deir el Muharraq and Meir along the margins of the alluvium to the Gebel Deshasha, considerable changes had taken place in historic times (cf. Butzer 1959a, p. 67 ff.; 1959c 1959d). The dunes which had advanced up to several miles east of the Pleistocene gravels during a 1500 year period after about 2350 B.C. were gradually removed. The Bahr Jusef, whose existence is verified by most of the classic authors, shifted westwards and removed the dune fields by lateral planation, depositing the sands further downstream in the river bed. There are numerous well profiles in the area between Dalga, Tuna and Balansura with moderately fine,

highly organic, fluviatile sands interbedded with alluvial clay or silt, and overlying crossbedded aeolian sands. In this region there is a 2 m thick layer of mud and nilotic sands containing Graeco-Roman pottery—a brown rilled and a coarse red ware (cf. Kaiser and Butzer 1960). This layer is again overlain by aeolian deposits, the oldest of which are still Roman. The implications are a phase of highly accelerated Nile-Bahr Jusef sedimentation in Ptolemaic-Roman times, probably associated with somewhat higher flood levels at the time (for details see various articles cited above). Geomorphological and geological evidence leaves little doubt that the Bahr Jusef flowed immediately east of the Pleistocene gravels between Meir and Balansura during several periods of the historic era.

The same area is most profusedly littered with archaeological debris, particularly a series of Graeco-Roman cemeteries extending from 2.4 km SSW of the Tomb of Petosiris to about 2 km NW of Tuna, a stretch of 7-8 km. The whole area is a mighty necropolis, belonging to the Hermpololite Nome and replacing the older cemeteries at El Barsha and Sheikh Said. The townsite of Tanis, immediately north of Tuna, is itself far too small to play a major role here. The tomb and mortuary temple of Petosiris was constructed after c. 340 and completed before c. 300 B. C. South of this curious architectural hybrid lies a whole mortuary city excavated by Cairo University staff members—most elaborate and exquisite, yet today in an area of blowing sand and hostile environment. The various houses or tombs associated with this city are all younger than that of Petosiris, and date into the first half of the 2. century A. D. There are remains of wells, saqiyas, ponds, palm gardens as well as houses notable for every detail of luxuriant living—all for use on special occasions associated with the rites of the deceased. It remains imperative that the western margins of the Nile Valley in Middle Egypt were good agricultural lands in Ptolemaic and Roman times. The basic differential must be assumed to have been physical, although the rural policies of the Ptolemies may also have contributed effectively to this temporary reclaimal of some 250 to 350 square kilometers of now 'worthless' land. For the area involved see symbols *Qha* and *Qhae* of the geological map in Butzer (1959b, Fig. 1).

New and improved crops or livestock were the second key to rural expansion. The staple crop of the country, wheat, was improved by the introduction of new varieties. The cultivation of the vine and olive were fostered and protected by heavy duties. Instead of supplying fruit they were made into wine and olive-oil, particularly in the areas of Greek rural settlement. J. A. Wilson (1955) reviewed the major wine regions of Egypt, and Strabo (XVII. 1. 35) mentions that olives are produced almost exclusively in the Fayum. Vegetables crops and fruit trees were improved in various ways. A new species of sheep providing better wool, possibly a new species of pig were introduced; the camel was put into effective transport use. There is also evidence that pines were extensively planted for ornamentation and to relieve the chronic deficiency of timber.

Thus ample evidence is available, that coupled with a sound economic policy and a carefully controlled system of tax-farming, the earlier years of the Ptolemaic dynasty were a period of exceptional social stability, rural expansion and general prosperity. For a full century there were no foreign invaders or local unrest. Urban industry flourished, particularly linen, glass and stone-work were produced in Upper Egypt. Commerce was strongly championed by the Dynasty, both export and import, as well as the transit trade via the Red sea ports and the Nile Valley. There seems to be no need to expand on the architectural accomplishments of the Dynasty : apart from innumerable additions, restorations etc. the notable temples of Dandara, Deir el Madina at Qurna, Esna, Edfu, Kom Ombo and Philae, begun by Euergetes and his successors and generally completed but for details before the Roman conquest.

Strabo's Geography of Egypt.

None of the classical geographers rival the Pontic-born Greek Strabo in objectivity, balanced presentation, interpretation and historical depth. And Strabo's Geography of Egypt is his finest work, it is a classic *Landeskunde* that cannot be compared with the mythic concoctions of Egyptian history and exotic miscellanea compiled by other classical authors. Strabo visited the Nile Valley up to Philae in 25-24 B. C., and did not

complete his written narrative, particularly book XVII, before A. D. 19, shortly before his death. In Strabo's day the golden years of the Ptolemies lay some two centuries back and the populace even seems to have temporarily appreciated the restoration of public order after the conquest by Octavian (Augustus) in 30 B. C.

Encouraged by the successful participation of native Egyptian troops at the Battle of Raphia in 217 a national rising, destined to be the first of many, had broken out in Upper Egypt during the late 3 century B. C. With the decline of the dynasty came inflation, shrinkage of the revenue, tax extortions, misgovernment and unrest. By the close of the reign of Philometer in 145 B. C. economic distress and administrative disintegration were widespread and obvious. The remaining century was one of repeated wars directed against national risings in Upper Egypt.

Rostovtzeff (1941, p. 910 ff.) considers the resentment, non-cooperation and hostility of the Egyptian labouring classes as the major reason for economic decline. This attitude had been evoked through economic oppression of the working classes, and the various effects of a division of the populace into two groups, one of which was economically and socially privileged and consisted to a large extent of foreigners. The resulting discontent and repeated rebellion led to the disintegration of the monarchy more decisively than any weakness or disability on the part of the Ptolemies.

Consequently the picture that Strabo gives of Egypt has a considerably altered complexion. His descriptions of the various towns and cities are brief but single out the salient characteristics at the time. Alexandria, which had replaced Memphis as capital during the earlier years of Ptolemy I, had grown to be the greatest commercial center of the inhabited world, although Strabo adds that the last century of Ptolemaic disorder had led to a decline in prosperity (XVII. 1. 12-13). Turning to the other leading cities described, Strabo mentions that Memphis was large and populous, second only to the capital. Like Alexandria its population consisted of mixed ethnic groups. Although the temples of Ptah, Apis and of Aphrodite still adorned the city, the old palaces were in ruins and abandoned (XVII. 1. 31-33). Further upstream Ptolemais is called the largest city of Upper Egypt, not being appreciably smaller than

Memphis. Strabo mentions that its civic institutions were modelled on those of the Greeks (XVII. 1. 42). Coptos appears to have been the second largest. Strabo stresses its commercial significance as emporium for Red Sea commerce. The population consisted in part of Egyptians, in part of the Bidscharin («Arabians»). The prosperity was due to the road constructed by Philadelphus to Berenice : deep wells had been dug and cisterns set up for the occasional downpours (XVII. 1. 44-45). Thebes strikes a rather pathetic note, the «city of the hundred gates» had once been the largest of all Egypt but had then been reduced to a «collection of villages» squatting among the bygone splendour. The contemporary town site extended on both banks of the river, the only notable monuments that struck the geographer were the obelisks, the Memnon colossi and the tombs of the Kings. Strabo accepted the misleading tradition that Cambyses was responsible for the destruction of the city (XVII. I. 46). Actually this process was more complicated : the wealth of the city disappeared with the thorough sack of the Assyrian Asarhaddon in 672, repeated by Assurbanipal 667. Then came various Egyptian revolts which were mainly centered at Thebes, so it appears that independent native pharaohs ruled there for 19 years during the reign of Philopator (221-203). The city suffered much, the climax was reached in a three-year siege and almost total destruction by Ptolemy XIII Auletes in 85 B. C. The rest was done by a number of serious earthquakes, particularly in 27 B. C.

The other towns of the Nile Valley are discussed considerably more summarily. A number are simply mentioned by name, so Cercesura (Warraq), Babylon (Old Cairo), Troia (Tura), Tanis (Tuna el-Gabal), Lycopolis, Aphroditopolis, Diospolis parva, Crocodilopolis (el Tod), Aphroditopolis (Gabalein), Hithyiaspolis, Hierakonpolis (Muessat) and Syene (Aswan). Several others are mentioned in connection with some oddity such as a special cult or temple, so Acanthus (el Nakanda), Arsinoe, Heracleopolis, Cynopolis, Oxyrhynchus, Hermopolis, Tentyra, Hermonthis (Armant), Latopolis (Esna), Appollonopolis and Elephantine. The remarks on a few of the remaining towns are often interesting. So Heliopolis, which had been a noted center of priestly learning in the days of Plato and Eudoxus, was entirely deserted and in a state of ruin. The

temples and obelisks had been severely damaged, for which Strabo (XVII. 1. 27-29), unjustly, blamed Cambyses. Panopolis is described as an old settlement of linen-workers and stone-workers (XVII. 1. 41), suggesting that these two industries were rather significant in the area, just as the Egyptian metal industry had traditionally been centred at Memphis. Strabo (XVII. 1. 42) notes the decline of Abydos from a large city « second only to Thebes», to a village. One may recall that Soter shifted the nome *metropolis* from Abydos to Ptolemais, this may have been a major reason for, or it may have simply reflected the earlier deterioration of the site. The comments on Philae (XVII. 1. 49) indicate the town as an entrepot for trade with Nubia and the Sudan, with a population of both Egyptians and Ethiopians.

At the time the country was weakly garrisoned—a generation later even more so—by only three legions with acessory cavalry based at Alexandria, Babylon and Syene (XVII. 1. 12, 30, 53).

The remainder of the text describes the elements of the vegetation (carob and date palms, sycomore fig, acacia, persea), the fact that papyrus was already confined to the lower Delta and the Maryut, various agricultural crops, particularly in connection with the fertility of the Fayum. Here wine, olive-oil, grain, pulse and other seed-crops were produced in large quantities (XVII. I. 35).

Apart from his vivid geographical description he presents a shrewd analysis of the economic decline under the Ptolemaic epigones, coupled with interesting remarks on the character and customs of the populace, and on the Nile and its sources.

Settlement Patterns and Symptoms of Economic Decline during the Period of Roman Dominion.

Already Herodotus, who spent over three months in Egypt about the year 450 B. C., refers to some ten cities in the Nile Valley. In the succeeding Ptolemaic epoch there are occasional references to Egyptian towns by Greek philosophers and historians, but all in all the most important literary reference to existing towns is that given by the innumerable Greek papyri found mainly in the Fayum, at Oxyrhynchos

and el-Hiba. Beginning with Diodorus of Sicily there are a number of classical references extending right through to the Arab Conquest, and which have been accurately analyzed and usably presented by J. Ball (1942). Diodorus mentions 10 towns of the Nile Valley; Strabo 31; Pliny, whose *Natural History* was published c. A. D. 77 did not represent any personal knowledge of the country, 20; Ptolemy, writing about A. D. 150, 49; the *Tabula Peuteringiana* of the second or third century A. D., 23; the *Antonine Itinerary*, dating from the time of Caracalla (A. D. 211-217), 46; the list of military garrisons (*Notitia Dignitatum*) under Valentinian III (A. D. 425-455), 37; Hierocles, writing c. A. D. 535, 30, and George of Cyprus in A. D. 606, also 30. In addition to these there is a great corpus of Coptic material, presented by E. Amélineau (1893) including Coptic documents or lists dating from the mid-fifth to the mid-seventh centuriess, and Coptic-Arabic sources, including documents, the history of John of Nikion writing immediately after the conquest, and the Coptic Synaxarium—all dating from the first two or three centuries of the Arab dynasties.

On the basis of the two major references above and consultation of a broad range of original sources, also such as were not used in Ball and Amélineau, Table 2 has been drawn up. It attempts to give as complete as possible a list of towns and villages as are documented and recognizable during the period under study. Testimony from various sources is checked on the table so as to present a chronological picture or at least a guage of relative significance. The standard Greek names have been rendered where known, otherwise the Coptic. The towns have been listed from the apex of the Delta to the First Cataract in that geographical order (see Fig. 1-3), and divided into west and east banks. This list of 101 place names attempts to be as complete as possible, but obviously cannot be so as numerous minor sources are bound to have escaped the writer's notice. Such towns as were only verified in the Coptic-Arabic sources or whose location is fully unknown are not included.

In Fig. 1-3 those towns mentioned by at least one half of the above sources have been capitalized throughout or otherwise indicated, and so stand out as more important centers. The list is almost identical with

Fig. 1. *Towns and Villages of Upper Egypt in Hellenistic Times.* Leading towns are capitalized throughout, Ptolemaic-Roman nome capitals are underlined, Coptic bishoprics indicated by large closed circles.

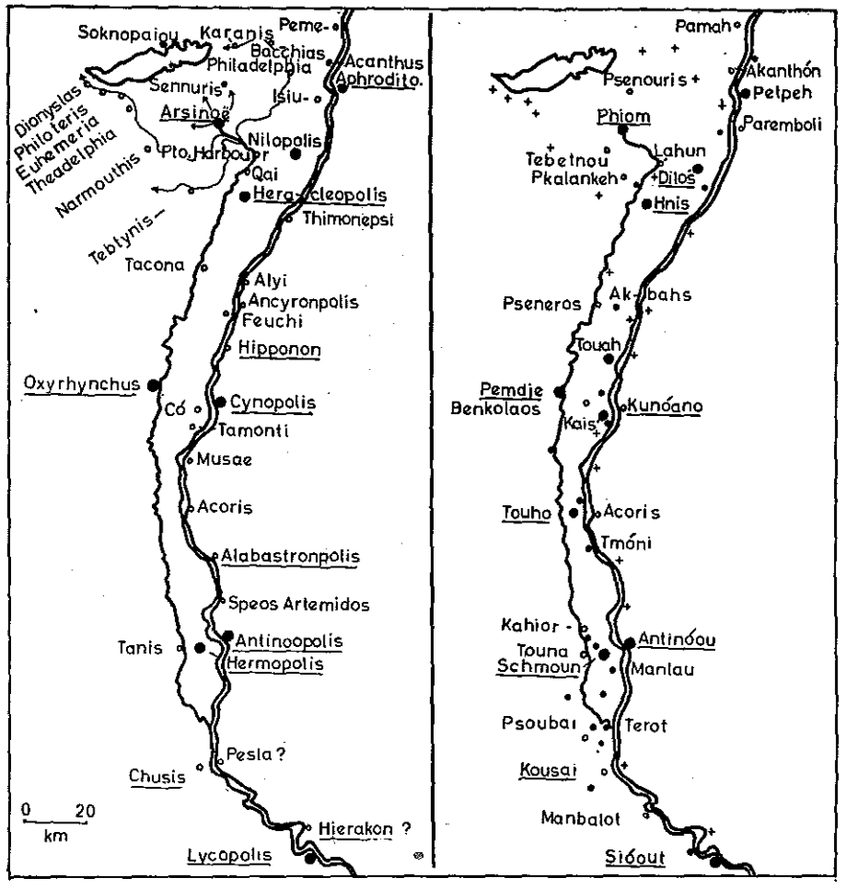

Fig. 2. (left) *Towns and Villages of Middle Egypt 4th century B. C. 3rd century A. D.* Leading towns indicated by large, closed circles, nome capitals underlined. Note main lines of irrigation-water supply in Fayum. Classical transcription of place-names.

Fig. 3. (right) *Towns and Villages of Middle Egypt 6th-8th centuries A. D.* Towns extinct since Roman times indicated by crosses. Towns verified only after A. D. 640 indicated by small, closed circles, usually without name. Bishoprics according to the Coptic lists indicated by large closed circles, bishoprics according to George of Cyprus underlined. Place-names are transliterated from the Coptic, modern names are referred to in text.

that of the nome capitals in Table 1, except for older *metropoleis,* Nilopolis, Roman additions or substitutions, Hermonthis, Antinoopolis and Antaeopolis, or towns closely associated with the nome-capitals although never attaining such rank : Babylon, Latopolis, Syene and Philae. A few of the minor *metropoleis* in Table 1 are not represented, so Ilithyiaspolis, outflanked by Esna and Edfu ; Aphroditopolis (X), replaced by Antaeopolis ; Hypsele ; Chusis ; Hebenu, and Hipponon. All in all however it is surprising how the economic unit of the nomes dominates the population patterns of the entire period.

Land tenure during the Roman period underwent certain changes despite retaining a basic similarity to earlier days. The better lands remained royal domain, although many of the temple properties were confiscated. The great estates which had mainly grown out of the the Ptolemaic gift-lands were gradually brought into the imperial private estate controlled by a procurator. The military settlements became full property of their owners. Private property was increased by auction of government lands or easy leases on marginal lands in order to extend cultivation (H. I. Bell 1948, p. 74-75). In the early years of the Roman rule irrigation schemes were rejuvenated and coupled with a strong efficient administration there was at first a considerable increase in prosperity, probably to the level of the early Ptolemaic monarchy.

However Egypt was one of the two granaries of the Empire, required to ship immense quantities of wheat annually to Rome. This one-way traffic of goods and money meant that Egypt had been reduced to a colony, not deriving any material benefits apart from administration. In fact no architectural work beyond occasional renovations or additions was carried out by the government after the reign of Tiberius (A.D. 14-37) despite its exclusive monopoly of quarrying rights. But not even efficient, honest administration was guaranteed, and serious irregularities were apparent at an early date. Taxfarming and other public functions were required as duties from the wealthier citizens. This matter of coercion was rather unfortunate as the demands were exceedingly high, and the unfortunate citizen was reponsible with person and property for all losses and deficiencies (Bell 1948. p. 78 ff.). This *liturgical* system ended by ruining the better-to-do peasantry and the middle class,

particularly after the latter half of the second century. The second form of gross exploitation was in the lease of royal land. The tithes were so high that it was often impossible to find voluntary bidders, in which case coercion was applied. Bell outlines two ways in which this was done: either unlet land in one village was assigned with all responsibility to the villagers of another town, or it was attached piece-meal to private holdings, compelling the owner to come up for these taxes as well. In this manner the royal land had almost disappeared by the fourth century in the administration's efforts to keep all land under cultivation, thus keeping the tax income such as to cover ever-increasing exactions by Rome.

Cases of tenants' families being imprisoned and tortured to find a defaulting tax-payer, of whole villages or towns deserted by their inhabitants, are already known from the reigns of Caligula and Claudius (A. D. 37-54). Nevertheless there does not seems to have a notable deterioration in the standard of building before the end of the second century. In A. D. 202 senates or municipal councils were established in the nome capitals, the wealthier townsmen of which were now responsible for the financial administration. Bell (1948, p. 91 ff.) considers this the decisive step in the ruin of the hellenized bourgeoisie. After the beginning of the third century rural depopulation was a common feature. Public works, particularly irrigation canals, were not kept in order and hardship resulted. So it is known that Theadelphia had to be abandoned because of failure of the water supply in the fourth century, Karanis a century later (Boak 1946). Although population density remained high, economic distress and depopulation were universal by the beginning of the Byzantine era—on a level unknown since the beginning of Ptolemaic rule.

Settlements on the East Bank in Middle Egypt.

Perhaps no single problem of settlement is as interesting as that of why the settlement remains along the eastern banks of the Nile are so extensive in parts of Middle Egypt where there is next to no alluvium, at least today. So far two similar questions have been treated and explanations offered, e.g. the great necropolis at Tuna el-Gabal whose

temporary splendour we attributed primarily to the shifts of the Bahr Jusef, and the great density of settlement right on the desert edge—due to rural expansion to the outer limits of cultivation. The third problem raised here is in part of course related to the policy of extension of cultivation, but it is more intricate.

Already in the 18. Dynasty Akhnaton (Amenophis IV) had founded his capital at Amarna on the east bank nearly opposite Mallawi. There is next to no alluvium here and all food-supplies had to be transported across the river, so that we cannot agree with Wilson (1955) that the splendid scheme was geographically well-chosen. This curious logic of a town without a hinterland does not stand alone. One can ask the question why three nome capitals, apparently all stemming from Old Kingdom roots, are similarly located (Hebenu, Cynopolis and Hipponon). Then comes the founding of Antinoopolis in the 2. century A. D.—with less than 200 feddans of alluvium in the vicinity. Some of these towns were extremely large in comparison to towns elsewhere. Jouguet (1911, p. 205 f.) stresses the compact nature of Egyptian towns. So for example the koms of Dionysias, Bacchias and Theadelphia do not measure more than 300 by 500 meters. But on the east bank Antinoopolis, according to the *Description d'Egypte* and personal observations, exceeded 800 by 1500 meters [1], the core of Hebenu (by personal observations) about 200 by 800 m—with considerable extensions to the southeast (cf. Kaiser and Butzer, 1960). The writer has not visited the sites of Cynopolis, Hipponon or Ancyronopolis.

The question that can be asked is whether the position of the river was different at that time. We can attempt to answer it by two approaches, one of them literary. Ptolemy (cf. Müller 1901, Ball 1942, p. 101 ff.) lists many of his place names with reference to the river such as « on the east bank», « inland», « in the interior», etc. This enables us to compare whether there have been any changes of the Nile course since. The Nile, as a natural meandering river could be expected to do so—except

[1] The ruins of Arsinoe were not much smaller in 1800, yet that town had a population of 100,000 or more in Roman times. Today Sheikh Ibada, the successor of Antinoopolis, has about 2000 inhabitants.

that artificial levees have long controlled its movements, and no really significant changes have occurred since the French 1 : 100,000 maps were surveyed and compiled about 1800. *If* the following towns were actually *on* the respective banks in the 2. century one could postulate the following shifts : Memphis, Nile has shifted 3.6 km eastwards; Dallas, Nile same; Heracleopolis, Bahr Jusef same; Co (el Qeis), Nile shifted 2.5 km eastwards [1]; Acoris, Nile shifted 0.6 km westwards — something supported by the great inscription of Epiphanes (203-181 B.C. on the limestone cliff, which was obviously intended to impress passing boat-travellers; if Alabastronpolis is really Hebenu and not Hetnub, « in the interior» could signify the Nile was located somewhat to the west at this critical point; Antinoopolis, Nile same; Antaeopolis, « in the interior», leaves no doubt that the river has since shifted eastward, in fact the town was destroyed in 1821 by such a shift. The *Antonine Itinerary* lists all towns on the right side of the river, so that at least such major branchings of the Nile are excluded. This suggests that the continual misplacement of towns on the Peutinger map is simply a matter of gross inaccuracy, in fact it is physically impossible that sites like Acoris or Antinoopolis were ever separated by water from the eastern desert.

On the face of it the above evidence carries strong suggestions that considerable shifts have occurred. But for Memphis it is known that canals connected it to the Nile, in the case of Hebenu there is an ancient dam of pre-Byzantine age either representing the artificial levee along the Sawada Canal —as a more recent dam at the same locality does now — or of the Nile (Butzer 1960). If the latter were true, lateral movement would be precluded, the former however would not prove anything. That Hebenu may have been called Alabastronpolis in Ptolemy's day

---

[1] The case of Cynopolis (Sheikh Fadl) is uncertain : does the statement « Cynopolis, opposite Co, on the island» mean « Cynopolis—opposite Co which is on the (Heracleopolite) island» or « Cynopolis on the island ». In the latter case Sheikh Fadl may possibly have had a Nile arm to its rear. The former explanation seems more convincing however.

is possible, as there are several quarries in the adjacent wadis. Also the latitude given by Ptolemy 28° 20′ N., not necessarily correct, seems too far north for Hetnub (27° 38′). Hebenu is actually at 28° 3′. Although the evidence is not conclusive, it may well be possible that there was more alluvium attached to the east bank at some localities, although not at Acoris or Antinoopolis. Such a physical factor must be considered possible however.

The idea seems more plausible yet when reviewing the Roman roads of the *Antonine Itinerary* (cf. W. Kubitschek 1933). These lists of roads and towns or relays dating from the early 3. century (Kirsten 1959) were probably compiled from more official sources. The striking fact is the continuous road along the east bank of the river from Babylon over Hipponon and Antinoopolis to Thebes and Aswan. The accuracy of the Itinerary is phenomenal so that there is no need to doubt this. Yet today there is no longer any serviceable north-south road from opposite el Wasta to opposite Manfalut. The reason for this condition is that such a road is not really necessary—there are insufficient people to make it worthwhile or to take care of the upkeep, and those villages or hamlets that do exist carry on well enough with the local ferry service. Physically such a road would also be difficult to construct, as the strip of alluvium is discontinuous and the desert terrain often rather difficult to employ for such purposes. A river situated a little further west, or meandering a little stronger would give the east bank a greater resource base, more alluvium and a greater population, and it would make the towns and roads seem somewhat more appropriate.

All of the towns of the east bank between Manfalut and Wasta are now inconsiderable and have been so since at least the 14. century. There has been very considerable depopulation of the east bank, and a shift in the larger towns from it to the west bank of the Nile.

Wholesale rural Depopulation during the Byzantine-Coptic Epoch.

Two decisive factors determined the course of economic life in the three centuries of Byzantine rule—the Christianization of Egypt, and the administrative reforms of Diocletian. The new belief was introduced

to Egypt at an early date in the 1. century, and the Christian community before the savage persecutions of the reign of Diocletian (284-305) warranted the office of three bishops. After the toleration edict of Milan in 313 the number of Christians grew astonishingly fast so that the country was predominantly Christian by A. D. 330 (Bell 1948, p. 104) and had some 20 bishoprics. Several decisive economic consequences can be indirectly attributed to this course of events.

Firstly the changes in architectural achievement. Before the reign of Constantine (323-337) it appears that the Christians did not have access to the government quarries, so that early church architecture developed on new lines, with the use of burnt and sundried brick and a plan that was essentially Byzantine in derivation (Somers Clark 1912). The Graeco-Roman period had not availed to change the basic architectural methods of Egypt in the least, and village homes were built in fully analogous ways in the 29. century B. C. as in the 19. century A. D. Coptic architecture then was an adaptation of the Basilican plan to native construction methods and a distinctive ecclesiastical ritual. Whereas «monumental» architecture had not been seriously fostered between the reigns of Tiberius and Constantine, a series of imposing churches and monastaries now arose throughout the nation, which have largely survived the vicissitudes of time. Reflecting the emphasis of the faith the buildings remained basically simple and austere in construction and ornamentation, at least where dominated by the ideals of the cenobitic movement. Simultaneously the temples of the pagan cult were destroyed, defaced or modified and adapted to Christian use.

The second tangible economic effect of the new religion was a revival of Egyptian national life. Much has been written already of the process where by the revived native idiom and the new Coptic script became the tools of a new phase of literature giving vent to the Egyptian populace after six centuries of silence, and in which «the very soul of Egypt found unfettered expression». Already the suppression of the Christian philosophical currents by the Patriarch Cyril (A. D. 412-444) set the course for the future national, particularist and ultimately provincial character of the Egyptian Church (Bell 1948, p. 112-116). The permanent schism after the Council of Chalcedon in 451 began the unhappy

centuries of opposition against the Byzantine government, that brought unprecedented anarchy, ruin and bloodshed to the country.

The third indirect impact of the new religion was its acceleration of the process of rural depopulation. Marginal lands had begun to go out of cultivation in the 3. century, and in the Fayum the process of depopulation whereby almost all of the land won by the Ptolemies had been abandoned—until modern times—was completed by the end of the 4. century. The effects of a crushing taxation were accentuated by several symptoms of the change in religion. By the edict of Theodosius in 389 the pagan temples were ordered closed, a fact which unleashed a period of violent and bloody excesses whereby temples were looted, destroyed or annexed, pagan villages or quarters molested, destroyed, or annihilated. This was particularly the case during the office of the patriarch Theophilus (384-412). The biography of the monk Shenudi calmly relates schocking tales of destruction and murder of pagan communities in the Akhmim area. The process of rural depopulation was secondly accelerated by the monastic movement of the Egyptian anchorites. The cenobitic rule of Pakhomius (292-346) was not universal and a century later there were tens of thousands of often uninstructed and illiterate monks collected in a number of monastic centers. This withdrawal from active life of masses of exceptionally vigorous young men could only be of serious economic implication (Bell 1948, p. 109-112). From the *Paradise of the Holy Fathers* it appears that Oxcyrhynchos and its environs harboured 10,000 monks, 20,000 nuns and a secular population of less than 20,000 in the 4. century. The third agency favouring rural depopulation has been alluded to already, namely the religious and national strife of 6. and 7. centuries. After 451 the whole monophysite church stood in open dissent with the Byzantine administration, secular and religious. Off and on there were bloody persecutions by the government, retaliations by the Copts, or devastating conflicts between warring factions in the Church. Particularly bloody was the persecution of 537-570 and the internal warfare of 566-577 (J. Maspero 1923).

Although considerable changes in land tenure policy heralded the administrative reforms of Diocletian and Constantine, these were unable

to halt the economic decline of Egypt or of the Empire as a whole. The introduction of a form of professional regulation quite generally bound everyone to his profession which was inherited from father to son—the so-called Byzantine servile state. Simultaneously the pressure of taxation effected a new trend in the rural picture, namely the creation of the large estates. Small owners, in order to avoid ruin, could surrender their land to a powerful neighbour. Thereafter they would be tenants bound by certain obligations in return for protection. They had so become *serfs*. By the 6. century the land was predominantly in the hands of such patrons, and divided into locally autonomous latifundia. The free cultivators, bound to the soil, did not have an easy time under the pressure of the patrons and their private 'troops'. The mass of the rural population had been reduced to a lowly class of voiceless, miserable serfs, almost a class of untouchables (Bell 1948, p. 117-126). The Byzantine period was not a happy one and it probably marked the lowest ebb in the social status of the fellahin. The Persian occupation of A. D. 616-628 was viewed with general approval, and the Arabs were acclaimed as liberators little more than a decade later.

Changes in Urban Patterns by the Time of the Arab Conquest.

The economic background and symptoms of rural depopulation have been outlined in considerable detail already, and it remains to consider the final changes in urban patterns. Apart from the great bulk of rural villages, probably differing but inconsiderably from such villages of the last century, there were still a number of larger towns or cities in which urban life was carried on. They performed an administrative function and generally harboured the bishoprics as well. Admittedly the wealthier, hellenized middle classes had been all but eliminated long before the 7. century. Yet Greek authors were still read and some rather pathetic attempts at a form of cultural life were kept up. Generally literacy was very low and even the bishops had but an imperfect knowledge of the administrative language, Greek. The leading citizens of the towns belonged to the new landed class of patrons who were predominantly of Egyptian stock.

There is little to guage the population of the cities by, but it must have been considerably smaller than it had been in Graeco-Roman times. In the 3. century the nome capitals had still had extravagant schemes of town-planning. In the Byzantine era the general picture was one of decay, a decay persisting into the Mameluke period when many of the old centres had fallen into complete oblivion and the administrative centres had as often as not shifted to new upcoming villages, unknown or insignificant in Roman times.

The basic cause for the shift of urban centers, already obvious in the Coptic era and dominant in Islamic times, lay in the administrative reform of Diocletian, a law posthumously put into effect between 307 and 310. By it the final step to full municipalization was taken : the nomes, and the nome administrations were abolished. Egypt was transformed from a complex of nomes, each with its *metropolis* and administered by a *strategos*, to a complex of self-governing municipalities (*civitates*), each with its own rural area (*territorium*) (Bell 1948, p. 101). This rural area, which broadly corresponded to that of the nomes, was subdivided into cantons (*pagi*), possessing considerable administrative importance. Thus the exclusiveness of the nome capital had been broken and a free urban development following economic and resource lines ensued. The result can be seen in a list of major towns from the 7. century, namely the bishoprics. The two lists are derived from Byzantine and from Coptic sources, which show a broad resemblance. The former are taken from the account of George of Cyprus dating from c. 606, as interpreted by Ball (and Murray) (1942). The latter is derived from the various Coptic-Arabic lists published in the original language by Amélineau (1893, p. 555-570).

The bishoprics so outlined in Tables 3 and 4 represent the major towns of Egypt as one can interpret from the almost total coincidence between the leading towns listed by Hierocles in 535 and the bishoprics listed by George of Cyprus. The Diocletianupolis of George is a little known designation as can be seen from the Coptic lists which equate *Diokletianou = Tibaki Kos Barbir*. The disresemblance between the list of nome capitals or the leading towns of Table 2 and our list of bishoprics is considerable. There are already 4 new names on the list of George,

TABLE 3

The Dioceses of the Nile Valley according to George of Cyprus c. A. D. 606

West Bank	*East Bank*
Letopolis (Ausim)	Heliopolis (Matariya)
Memphis (Mit Rihcina)	Aphroditopolis (Atfih)
Arsinoe (Medinet el Fayum)	Cynopolis (Sheikh Ibada)
Nilopolis (Dallas)	Antinoopolis (Qaw el Kebir)
Heracleopolis (Ihnasiya)	Panopolis (Akhmim)
Oxyrhynchus (Bahnasa)	Maximianupolis (?)
Theodosiopolis (Taha el A'mida)	Coptos (Quft)
Hermopolis magna (Ashmunein)	Diocletianupolis (Qus)
Chusis (Qusiya)	Diospolis magna (Luxor)
Lycopolis (Asyut)	Ombi (Kom Ombo)
Hypsele (Shutb)	Philae
Apollonos minor (Kom Isfaht?)	
Ptolemais Hermiu (Manshah)	
Tentyra (Dandara)	
Hermonthis (Armant)	
Latopolis (Esna)	
Apollonopolis magna (Edfu)	

TABLE 4

The Dioceses of the Nile Valley according to the Coptic

Lists of the 7th Century

West Bank	*East Bank*
Bouschim (Ausim)	On (Matariya)
Tipersis (Giza)	Petpeh (Atfih)
Memphis (Mit Rihcina)	Kunóanó (Sheikh Fadl)
Phiom (Medinet el Fayum)	Antinóou-Poufisa (Sheikh Ibada)
Dilos (Dallas)	Tkóou (Qaw el-Kebir)
Hnis (Ihnasiya)	Schmin (Akhmim)
Toubah (Tuah)	Hou (Hiw)
Pemdje (Bahnasa)	Kepht (Quft)
Touho (Taha el A'mida)	Kós Berbir (Qus)
Schmoun (Ashmunein)	Embó (Kom ombo)
Sióout (Asyut)	Souan (Aswan)
Schótep (Shutb)	
Sebhet (Sidfa)	
Aksenkeuson Tinischti (Kom Isfaht?)	
Nitentóri (Dandara)	
Ermont (Armant)	
Isni (Esna)	
Atbó (Edfu)	

3 further new names in the Coptic lists. 21 % of the towns on these Coptic lists were never nome capitals, and are not included among the leading towns of the Graeco-Roman period. This appearance of new towns becomes more obvious when the towns known from Coptic sources and Coptic-Arabic sources are compared with those known from classical sources dating from before the end of the 3. century. Fig. 2 and 3 show this distinction for Middle Egypt including the Fayum.

Of the 40 middle Egyptian towns known in Graeco-Roman times, 24 (60 %) have disappeared from record. As our knowledge of Coptic place names is far more complete than that of any previous period, due to the amount of literary evidence, it is reasonably certain that these had either been abandoned or had sunken into insignificance. Of these 24 towns 19 are on the margins of cultivation (10 on the banks of the Fayum, 9 on the east bank), indicating rural depopulation in the Fayum and on the east bank. The appearance of at least 31 new towns in the Coptic-Arabic period need not be alarming, and they mainly represent villages existing but not recorded previously because of incomplete evidence for the earlier period. They do however contain several centers which have become rather important in modern times : Tmóni (el Minya), Manlau (Mallawi), Terot Saraban (Deirut es-Sherif) and Manabalot (Manfalut). All in all both periods contrasted here have only 18 % of their 71 towns and villages in common, a fact which underscores the considerable changes in settlement patterns between Greek and Coptic-Arabic times. The underlying reasons are two-fold : depopulation of the marginal lands temporarily occupied in the Graeco-Roman period, and the appearance of new towns in better resource locations between the Nile and the Bahr Jusef, made possible by the disappearance of the nomes as strict economic units. Minya replaced Hebenu ; el Qeis (Kais) replaced Sheikh Fadl ; Toubah (disappeared since the French Survey) and later Maghagha replaced Hipponon ; el Aqbahs and later el Fashn replaced Ancyronpolis.

A third change in pattern occurred in early Islamic times when depopulation took place along the Bahr Jusef stretch, most probably due to physical factors. So Oxyrhynchus (Bahnasa) and Tanis (Tuna) were no longer listed in the catastral survey of A. D. 1315. On the east bank

Antinoopolis had also sunken into oblivion. And in the same period Cairo fully replaced Memphis, which name had also been lost by 1315.

The 1000 year span of the Hellenistic age, in the broader sense of the word, was a remarkable period of transition in Egypt. In the Coptic period one can unmistakably observe the modern patterns emerge. Even the place names of the Coptic era are often almost identical with those of to-day, indicating the ancient Egyptian toponyms have generally survived both the Greek and the Arabic.

LITERATURE CITED

Amélineau, E. (1893). *La Géographie de l'Égypte à l'Epoque Copte.* Paris. 630 pp.

Ball, J. (1942). *Egypt in the classical Geographers.* Cairo (edited by G. W. Murray). 203 pp.

Bell, H. I. (1948). *Egypt from Alexander the Great to the Arab Conquest. A study in the diffusion and decay of Hellenism.* Oxford. 168 pp.

Boak, A. E. R. (1946). An Egyptian farmer of the age of Diocletian and Constantine. *Byzantina Metabyzantina* 1, 39-53.

Butzer, K. W. (1959a). Die Naturlandschaft Ägyptens während der Vorgeschichte und der Dynastischen Zeit. *Abh. Akad. Wiss. Liter. (Mainz) Math.-naturw. Kl.* Nr. 1. 80 pp. Franz Steiner Verlag, Wiesbaden.

—— (1959*b*). Contributions to the Pleistocene geology of the Nile Valley. *Erdkunde* 13, 46-67.

—— (1959*c*). Some Recent geological deposits of the Egyptian Nile Valley. *Geogr. Jour.* 125, 175-179.

—— (1959*d*). Environment and human ecology in Egypt during Predynastic and early Dynastic times. *Bull. Soc. Géogr. d'Égypte* 32, 43-87.

—— (1960). Archäologische Fundstellen Mittel-und Oberägyptens in ihrer geologischen Landschaft *in ;* Kaiser and Butzer (1960).

—— (1960*a*). Archaeology and geology in the Nile Valley. Geomorphological analysis of sites enables reconstruction of the geography of prehistoric settlement. *Science* (in print).

Caton-Thompson, G. and Gardner, E. W. (1929). Recent work on the problem of Lake Moeris, *Geogr. Jour.* 73, 20-60.

—— and —— (1934). *The Desert Fayum.* London. 2 vol.

—— and Huzayyin, S. A. (1937). Lake Moeris. Re-investigations and some comments. *Bull. Inst. d'Égypte* 19, 243-303.

Clark, Somers (1912). *Christian Antiquities in the Nile Valley. A contribution towards the study of the ancient churches.* Oxford. 234 pp.

Diodorus Siculus, *Library of History*. Translated by C. H. Oldfather, Loeb Classical Library, London, 1923. 10 vol.

Herodotus, *The Histories*. Translated by A. de Selincourt, Penguin Classics, Harmondsworth, 1954.

Josephus, *The Jewish War*. Translated by G. A. Williamson, Penguin Classics, Harmondsworth, 1959.

Jouguet, P. (1911). *La Vie municipale dans l'Égypte romaine*. Paris. 266 pp.

Kaiser, W. and Butzer, K. W. (1960). Bericht über eine geologische-archäologische Felduntersuchung in Ägypten 1958. *Mitt. deut. arch. Institut, Abt. Kairo,* 17.

Kirsten, E. (1959). Eine Reise von Hermupolis in Oberägypten nach Antiochia zur Zeit Kaiser Konstantins. *Erdkunde* 13, 411-426.

Kubitschek, W. (1933). Ein arithmetisches Gedicht und das Itinerarium Antonini. *L'antiquité classique* 2, 167-178.

Maspero, J. (1923). *Histoires des Patriarches d'Alexandrie* (518-616). Paris. 429 pp.

Müller, C. (1893-1901). *Geographia.* Translation of Claudius Ptolemaeus. Paris. 2 vol. (incomplete).

Plinius Secundus, *Natural History*. Translated by W. Rackham, Loeb Classical Library. London, 1938.

Porter, B. and Moss, R. L. B. (1927-1951). *Topographical Bibliography of Ancient Egyptian hieroglyphic Texts Reliefs and Paintings.* Oxford. 6 vol.

Préaux, Claire (1939). *L'Economie royale des Lagides.* Brussels.

Shafei, A. (1940). Fayoum irrigation as described by Nabulsi. *Bull. Soc. Géogr. d'Égypte* 20, 283-327.

Strabo, *Geography*. Translated by H. L. Jones, Loeb Classical Library. London, 1922, 8 vol.

Rostovtzeff, M. I. (1922). *A large estate in Egypt in the third century B. C. A study in economic history*. Madison, Wis. 209 pp.

—— (1941). *Social and Economic History of the Hellenistic World.* Oxford. 3 vol.

Wessely, K. (1904). Topographie des Faijum (Arsinoites nomus) in griechischer Zeit. *Denkschr. K. Akad. Wiss. Wien, phil.-hist. Kl.* 50, 1.

Wilson, J. A. (1955). Buto and Hierakonpolis in the geography of Egypt. *Jour. Near Eastern Studies* 14, 209-266.