

THE SKELETONS OF LERNA HOLLOW

(PLATE 62)

HUMAN skeletal materials from the Gymnasium area of Ancient Corinth, Greece, were recovered from a series of graves investigated in 1965-1969, as part of the excavations of the University of Texas for the American School of Classical Studies.¹ This area has been designated the "Cemetery of Lerna Hollow" because of its proximity to the ancient spring of Lerna, and appears to have been used as a cemetery from the last years of the 4th century after Christ through the 6th century.² One hundred and one graves were located during the five seasons of excavation, but skeletal remains were recovered from only 52 of these. The remainder were either never opened or, in the case of one, contained no skeletal material.³

The sample comprises at least 164 individuals: 117 adults and 47 sub-adults. Preservation, however, was unremittingly poor. As an example, there were only four complete or mendable long bones among the entire adult sample. The majority of the graves contained more than one skeleton; and earlier interments were usually disturbed by a later burial. Consequently, relatively little information was obtained on the human biology of this group of Late Roman Corinthians. Nevertheless, since this study is more concerned with demographic considerations than with osteometry or the evaluation of discontinuous skeletal traits, it remained possible to generate some testable hypotheses for future research.

¹ This report is based on my thesis for the M. A. degree in anthropology at the University of Texas at Austin in 1971: "An Analysis of the Human Skeletal Remains from the Lerna Hollow Cemetery, Ancient Corinth, Greece."

I would like to acknowledge the assistance of Dr. Robert M. Malina and Dr. James A. Neely of the Department of Anthropology and Dr. James R. Wiseman of the Department of Classics, all of the University of Texas. In addition, Dr. Wiseman has served as the Director of the University of Texas excavations at Corinth and deserves an extra note of thanks for making the skeletal material and records available. Mr. Charles K. Williams, Director of Excavations of the American School at Corinth, and Miss Kathryn Butt, then Secretary of the School at Corinth, are to be thanked for making the facilities at Ancient Corinth available during 1969. Some of the skeletons discussed herein had been examined previously by Dr. J. Lawrence Angel of the Smithsonian Institution, and I must acknowledge my gratitude for his permission to include these skeletons in this study.

² Preliminary reports by James Wiseman of excavations in the Gymnasium area which include information on the Cemetery are in *Hesperia*, XXXVI, 1967, pp. 13-41, 402-428; XXXVIII, 1969, pp. 64-106; XLI, 1972, pp. 1-42.

³ Grave 98, a rock-cut chamber tomb which was sealed in antiquity, showed no evidence of ever having contained a corpse. It must have served as a cenotaph. Wiseman, *op. cit.*, 1972, pp. 8-9.

GRAVE CONSTRUCTION

The two most common varieties of graves in the Lerna Hollow Cemetery were tile graves and rock-cut graves. Although the number of samples is small, especially in the case of tile graves, analysis of the skeletal materials suggests that neither sex nor age at the time of death was a criterion for interment in the tile graves, whereas the latter *may* have been one of the factors affecting the choice of burial in a rock-cut grave (see Tables I-II). Although the entire sample of skeletal materials from the Lerna Hollow Cemetery will be discussed below, the assumption will be made that the choice of grave is cultural (financial status, social standing, religion, or the like) as opposed to simple membership in a demographic category (sex or age at the time of death).

TILE GRAVES

Although a few of the rock-cut graves contained only a single skeleton, the tile graves invariably contained one individual. The deceased was placed in an extended position in a shallow (*ca.* 0.60 m.) grave dug into the earth. Laconian roof tiles were then placed, long edge down, on either side of the corpse and leaned against one another to form an arch over the body. This arrangement was frequently supplemented by roof tiles or stones closing the head and foot of the grave, and the pit was then filled with earth.⁴

ROCK-CUT GRAVES

These more elaborate graves which were cut into the surface of limestone bed-rock (*poros*) were of two sorts: a rectangular cutting or a chamber with an entrance shaft. The former is simply a rectangular cutting *ca.* 1 meter deep, large enough to contain an extended adult. The chamber grave is more complex. It ordinarily consisted of a nearly square shaft cut vertically into the rock for a little over a meter, and a rectangular grave chamber cut horizontally from one side of the shaft at its lower depth. Including the space provided by the entrance shaft, which served as the foot end of the grave, the chamber is about two meters long and *ca.* 0.7 m. in the vertical dimension. All of these had stone cover slabs fitting over the entrance shaft, but rarely did they fit so closely as to prevent soil from sifting in over the centuries. Some of these rock-cut graves had stucco-covered rubble mounds, *ca.* 0.50 m. high, over their plan, serving as grave monuments. Several variations among these graves have been illustrated by Wiseman.⁵

Almost all of the rock-cut graves contained several interments, some of which, at least, were successive. In most instances of successive interments sufficient time

⁴ For illustrations of tile graves see Wiseman, *op. cit.*, XXXVI, 1967, pls. 13, a, 14, a and d.

⁵ *Ibid.*, XXXVI, 1967, fig. 18, pls. 13, e, 14, b, 84, e; XXXVIII, 1969, figs. 8 and 9, pl. 26, a.

had elapsed for the soft tissues of the previous burial to decompose. Hence, the earlier burials in a given grave were disturbed to some extent by the activity associated with the placement of later burials in the same grave. The number of individuals in a rock-cut grave ranged from one to a maximum of at least twenty-one.⁶ Grave furnishings in either tile or rock-cut graves, if present at all, were meager: small wheel-made vessels, finger rings or other personal ornaments, or an infrequent coin.

METHODS

The original research design called for as thorough a study of the sample as was practical, including roentgenographic examination for transverse lines and cortical thickness in the long bones, and for possible hemolytic disorders, particularly in the cranial vault.⁷ The preservation of the skeletal material was so poor, however, that research was limited to the following:

- 1) Determinations of the minimum number of individuals per rock-cut grave.
- 2) Judgments of sex and age at the time of death and possible demographic implications.
- 3) Assessment of dental health and osteopathology, and derivation of relevant conclusions.

The poor preservation of the bones presented acute problems in excavation. Even gentle brushing would crumble the denser portions of bones. Skulls and the articular ends of long bones were, as a rule, not preserved at all. Surely the hydrology of the Corinth area, causing an alternate wetting and drying of the graves cut into poros, contributed to the decay of the bones.

The determination of the minimum number of individuals present in each grave was based on bone counts, with the frequency of the most commonly occurring skeletal element indicating the *minimum* number of individuals present. The elements most often preserved were distal humeri, proximal ulnae, and proximal femora fragments. For example, if a grave yielded four proximal left femora, two right humeri, and five left humeri, the minimum number of individuals present was taken at five. Occasionally, the presence of immature bones indicated that the minimum number of individuals be increased. For instance, if there were four adult proximal left femora and a child's proximal right tibia, the presence of four adults and one child was indicated.

⁶ See note 3 above.

⁷ For considerations of the utility of roentgenography in the study of earlier human populations, see H. McHenry, "Transverse Lines in Longbones of Prehistoric California Indians," *American Journal of Physical Anthropology*, XXIX, 1968, pp. 1-18; W. A. Marshall, "Problems in Relating the Presence of Transverse Lines in the Radius to the Occurrence of Disease," in *The Skeletal Biology of Earlier Human Populations* (D. R. Brothwell, editor), Oxford, 1968; and D. R. Brothwell, *et al.*, "Radiological Aspects of Normal Variation in Earlier Skeletons: An Exploratory Study," in Brothwell, *op. cit.*, pp. 149-172.

Determination of sex was based, for the most part, on general robusticity of the long bones and cranial features (if cranial fragments were present at all). The criteria used are discussed in detail by W. M. Krogman.⁸ Very rarely were innominate or skulls complete enough to be of use in judgments of sex, and, in any case, the mingled bones of the multiple burials would not permit positive association of cranial or pelvic fragments with the long bones on which the bone counts were made.

Estimates of the age at the time of death were based upon dental eruption and epiphyseal union for the sub-adults. The adults, when not simply classed as "adult" due to lack of adequate aging criteria, were aged by the only partly satisfactory method of cranial suture closure.⁹ In only one instance was a male pubic symphysis sufficiently preserved to provide a satisfactory estimate of age.

Assessments of pathology were likewise frustrated by the poor preservation of the sample. Observations of disorders of the joints and vertebrae were quite infrequent, and the low incidence of other osteopathology may be a function of preservation. In addition, dentitions were fragmented and could not, in the very great majority of cases, be either sexed (based on robustness) or aged (based on attrition). What is more, teeth were frequently not present although the well-defined borders of the tooth sockets indicated that the teeth were retained at the time of death. Accordingly, the most informative approach to dental health seemed to be an appraisal of tooth loss prior to death.

RESULTS

DEMOGRAPHY

Tile Graves. The tile graves, as mentioned earlier, represented the less elaborate burial method, and each of the eleven graves excavated contained a single individual. These represented 21 percent of the 52 graves containing human skeletal material, and the eleven individuals comprised approximately 7 percent of the 164 individuals present in the collection. The distribution of age/sex categories for the tile graves is in Table I.

One could hardly ask for a more even distribution of sexes (assuming that half of the children are one sex, half the other), and a wide range of ages is represented—from 5 to 40 or more years. The latter is particularly interesting in light of the small sample size. From these distributions it would appear that the use of the tile graves was not preferred for one sex or the other, nor for members of any specific age group.

The assumption that the two types of graves are contemporaneous is borne out by the archeological evidence. Accordingly, one may postulate that the use of a tile

⁸ *The Human Skeleton in Forensic Medicine*, Springfield, Illinois, 1962.

⁹ See Krogman, *ibid.*, for a review of the problems associated with aging skeletal materials by this method.

grave rather than a more elaborate rock-cut grave, for this sample, at least, was decided upon by considerations other than sex or age at the time of death. Such considerations are discussed below.

The female of forty-plus years of age from Grave 2 was examined by J. L. Angel who noted what he interpreted as "a number of 'negroid' (not full negro) traits in the face."¹⁰ The skull is fairly complete, but not enough so for discriminant function analysis.¹¹ There is marked maxillary prognathism and the orbits may be described as rectangular, traits frequently used in forensic diagnosis of Negro crania. Despite the presence of these traits, we must recall that we are quite ignorant of the range of variation in cranial morphology among the Late Roman Corinthians. Consequently, attempts to identify the race of a single skull (one of only three preserved from the Lerna Hollow collection) are on unsure grounds. The features of

TABLE I
AGE AND SEX DISTRIBUTION OF SKELETONS FROM ROCK-CUT GRAVES

<i>Sex</i>	<i>N</i>	<i>Age at the Time of Death</i>
Male	3	one is 20-30 years
Female	4	two are 40 years
Sub-adults	4	approximately 5, 10-12, 15, and
	—	14-16 years
Total	11	

this skull may, after all, be within the range of variation for the (presumably) Caucasoid population of Corinth at this time.¹²

Rock-cut Graves. Of the 52 graves producing human skeletal materials, 40 (76 percent) were rock-cut graves. These 40 graves yielded 153 individuals, or 93 percent of the 164 individuals comprising the sample from Lerna Hollow. Detailed and thorough analysis was frustrated by poor preservation and the mixing of bones from different individuals within a grave. Also, Wiseman¹³ identifies some of the graves as *osteothekē* (repositories for secondary burials) which would make identifications of articulations and individuals doubly difficult, if not impossible.

The distribution of demographic categories is presented in Table II. As is the

¹⁰ Wiseman, *Hesperia*, XXXVIII, 1969, p. 86.

¹¹ E. Giles and O. Elliot, "Race Identification from Cranial Measurements," *Journal of Forensic Sciences*, VII, 1962, pp. 147-157.

¹² Wiseman, *loc. cit.*, notes that Angel examined another skull from the nearby Asklepieion excavations in 1937 and recorded that it, too, displayed "Negroid" traits.

¹³ *Ibid.*, pp. 79-82.

case with the tile graves, all ages (as well as can be determined) are represented, and there is no certain evidence for sex being a criterion for burial in these graves. Although some estimate of the chronological age could be made for 30 of the immature individuals, only 24 of the adults could be assigned to a span of years more specific than simply "adult." Since only 22 percent of the adults could be aged, mortality curves are relatively meaningless. The adults (that is, those over 20 years of age) comprise 72 percent of the 153 individuals from the rock-cut graves. This is of some interest since it compares favorably in this regard with modern, industrialized societies, the archeological sample from Pecos Pueblo, and Richardson's survey of age at the time of death on Greek and Latin funeral inscriptions.¹⁴ Although

TABLE II

AGE AND SEX DISTRIBUTION OF SKELETONS FROM ROCK-CUT GRAVES

<i>Class</i>	<i>N</i>	<i>Percent of 153 (total of individuals from rock-cut graves)</i>	
<i>Adults</i>			
Male	51	33	
Female	39	25	72
Sex indeterminate	20	13	
<i>Sub-adults</i>			
Infants (0-2 years)	4	3	
Children (2-10 years)	17	11	28
Adolescents (10-19 years)	9	6	
Age indeterminate	13	9	
Total	153	100	100

the similarity to the industrialized societies is striking, it seems far more likely that this is a consequence of sampling error, and that the Lerna Hollow sample does not reflect the actual proportions of adults and sub-adults in the population.

If we make the assumption that modern industrialized societies are more likely to afford healthier living conditions for the young than Late Roman Corinth, and that we should expect a higher rate of sub-adult mortality in the latter, several explanations can be offered for the "failure" of the Corinth sample to produce mortality percentages different from modern groups:

¹⁴ See Table III for references for these groups.

- 1) Differential preservation of skeletons.
- 2) Sampling error.
- 3) Alternate methods of disposal of children's corpses.

The first, differential preservation of the smaller, less completely ossified bones of children, as compared with those of adults, can probably be ruled out. Complete disintegration of a skeleton would involve a remarkably harsh burial environment,

TABLE III

COMPARISONS OF AGE STRUCTURE FOR THE LERNA HOLLOW SAMPLE
AND VARIOUS OTHER GROUPS

<i>Group</i>	<i>0-14 years</i>	<i>15-65 years</i>
United Kingdom, 1959 ¹	23%	77%
United States, 1960 ¹	31%	69%
Japan, 1960 ¹	30%	70%
India, 1951 ¹	37%	63%
Pecos Pueblo ²	29.4%	70.6%
	(0-19 years)	(20-55 years)
Indian Knoll, Kentucky ³	41.3%	58.7%
Adena ⁴	13.2%	86.8%
Greek and Roman Inscriptions ⁵	27.7%	72.3%
Lerna Hollow, Corinth		
Rock-cut Graves	29%	71%
Entire Sample	27%	73%

¹ From various sources, quoted in P. R. Ehrlich and A. H. Ehrlich, *Population, Resources, Environment: Issues in Human Ecology*, San Francisco, 1970, figs. 3-5.

² E. A. Hooton, *The Indians of Pecos Pueblo*, Yale University Press, 1930, Table 11-6.

³ F. E. Johnston and C. E. Snow, "The Reassessment of the Indian Knoll Skeletal Population: Demographic and Methodological Aspects," *The American Journal of Physical Anthropology*, XIX, 1961, pp. 237-244, Table 2.

⁴ W. S. Webb and C. E. Snow, *The Adena People*, University of Kentucky Reports in Anthropology and Archaeology, VI, 1945, Table 2.

⁵ B. E. Richardson, *Old Age among the Ancient Greeks*, Baltimore, 1933, Table 1.

and the preservation of the children's bones compared favorably with those of adults when both were present in the same grave.

Although errors in sampling can never be ruled out, a collection of 40 rock-cut graves would seem to be a sufficient number for representing the range of graves that were used in the area and during the time period under consideration.

The third explanation, that of an alternate method of disposal of the bodies of children and infants, appears to be the most likely. It is obvious, however, that if

there were alternative means of disposal, there was differential utilization of them. In other words, some children were buried with adults while others were disposed of in some way that the archeology of the Gymnasium area has yet to detect. In this context it may be pointed out that slightly over half of the rock-cut graves with skeletons had at least one child in them (23 out of 39). Perhaps less likely, but a possibility, is that the children were not present to be buried. If the Late Roman Corinthian population actually had a greater proportion of children than this sample indicates, they may have been sent off for some reason or taken into slavery.

Comments by Robinson¹⁵ on the graves at Olynthos, although they date from the 7th through 4th centuries B.C., mention child exposure as a method of disposing of infants' corpses which would not be seen in the archeological record:

The motives (for exposure) might be religious, economical, or social. The religious motive, which has never been proposed by writers on the subject, may be summarily dismissed since human sacrifice has not been practiced in historic Greece. Economic infanticide took its toll of infants, though there is reason to believe that economic exposures were more often foundlings than infanticides. Economic exposure fluctuated with the hardship of the times and reached its apex in the third and fourth centuries of the Roman Empire. No doubt the social motive has produced its exposures, as it has in every age, including our own.

Since many of the graves from the Lerna Hollow Cemetery can be identified as Christian, the strong taboo that faith has against the destruction of fellow members of the immediate religious community adds another variable to the understanding of the demographic patterns of Late Roman Corinth.

A similar incidence of seemingly low child mortality was noted by Richardson¹⁶ in her study of Greek funeral inscriptions. She examined 2022 such inscriptions from numerous locations in the Classical world, and tallied the stones by age at the time of death of the person being memorialized. She noted that 27.7 percent of her sample died before 15 years of age. I would not say that Richardson's sampling technique and that used in excavating Lerna Hollow may be equated. Her explanation, however, is of interest: "It is likely . . . that the deaths of smaller children may not always have been recorded and this group may be larger than we suppose."¹⁷

The number of individuals within a single rock-cut grave ranged from one to twenty-one. Mention should be made that Grave 98, thoroughly sealed with a cover slab and concrete in antiquity, showed no sign of ever having contained a corpse. Possibly it was a cenotaph. The statistical mode for the number of individuals within a grave is two; other frequencies are listed in Table IV.

Considering 153 individuals from 39 graves, there is an average of 3.92 interments per rock-cut grave. Since Grave 5, with its 21 individuals (11 adults and 10

¹⁵ D. M. Robinson, *Excavations at Olynthus*, XI, *Necrolynthia, A Study in Greek Burial Customs and Anthropology*, Baltimore, 1942, p. 171.

¹⁶ B. E. Richardson, *Old Age among the Ancient Greeks*, Baltimore, 1933.

¹⁷ *Ibid.*, p. 232.

children) appears to be atypical for this series, omitting it from the calculations produces a mean of 3.47 people per grave. The median is between three and four individuals per grave, similar to the mean. Nevertheless, it is probably more meaningful to consider frequency in terms of the mode under these conditions. As Table IV shows, the rock-cut graves generally held between one and five individuals.

TABLE IV
NUMBER OF INDIVIDUALS IN ROCK-CUT GRAVES

<i>Number of Individuals</i>	<i>Frequency of Graves with N Individuals</i>	<i>% of 38</i>
1	6	15.8
2	11	28.9
3	5	13.2
4	3	7.9
5	7	18.4
6	3	7.9
8	3	7.9
21	1	omitted as atypical
	39	100%

SKELETAL OBSERVATIONS

The preservation of the sample was such that few statements can be made concerning either metric or non-metric features. There were only three partially mended crania, and four complete long bones among the adults. Attempts to note some of the more easily observable non-metric features, such as accessory bones in the skull, were frustrated by the fragmentary condition of the crania. With the exception of several lambdoidal ossicles and ossicles at the asterion noted on several larger fragments, the only cranial features worth comment are those of two adults with open metopic sutures and several examples of abnormally thickened cranial vaults.

One male from Grave 53 and one probable male from Grave 58 (both of which are rock-cut graves) have metopic sutures which persisted into adult life. Despite the comparative rarity of this trait¹⁸ and the possibility that it may be under genetic

¹⁸ Under 10% in 21 series of skeletons listed in D. R. Brothwell, *Digging Up Bones*, London, 1963, Table 3; and R. J. Berry, "The Biology of Non-Metrical Variation in Mice and Men," Table I, in *The Skeletal Biology of Earlier Human Populations* (D. R. Brothwell, editor), Oxford, 1968.

control,¹⁹ it is hazardous to suggest a genetic tie between these two individuals. With respect for cautions concerning inference of family groups by non-metric traits in skeletal material,²⁰ attempts to note similarities in discontinuous cranial traits among the occupants of a given grave were made. Preservation rendered observations so infrequent that such relationships remain a moot point.

Estimates of living stature from the length of long bones were possible for four individuals from two rock-cut graves. The regression equations of Trotter and Gleser²¹ for whites were used, with the following results:

<i>Grave</i>	<i>Stature Estimate</i>
3: male ulna	173 cm. \pm 4.7 cm.
5: male humerus	175 cm. \pm 4.5 cm.
5: male radius	163 cm. \pm 4.6 cm.
5: female radius	160 cm. \pm 4.2 cm.

Angel²² lists the stature reconstructions of two males and four females from the Roman period in Athens, the males 161 and 166 cm., while the females range between 155 and 160 cm. Lest these differences appear greater than they actually are, we should remind ourselves of the small sample sizes we are dealing with and the fact that the range of the four stature reconstructions from Lerna Hollow is only about $5\frac{1}{4}$ inches.

Observed osteopathology was quite infrequent in the sample. One healed fracture, one infected tibia, two small healing cranial lesions, and occasional osteoarthritic involvement on vertebral and joint surfaces were the principal observations. It is difficult to say whether the low incidence of observed pathology is due mainly to preservation or to good conditions of health (as far as diseases affecting bone are concerned), but it is certain that preservation factors are obscuring the picture.

One aspect of cranial pathology, however, deserves further consideration. Although cranial vaults were, almost without exception, badly fragmented, a number of abnormally thick parietal sections were noted. The major part of the bony elaboration was in the diplöe, and vault thicknesses frequently approached 12-14 mm. From the total collection, seven individuals were diagnosed as certainly having this characteristic, while five other possible cases were noted. These were all evenly divided among male and female adults, and it is surprising that no children were noted as

¹⁹ M. F. A. Montagu, "The Medio-Frontal Suture and the Problem of Metopism in the Primates," *Journal of the Royal Anthropological Institute*, LXVII, 1937, pp. 157-201; and J. Torgersen, "The Developmental Genetics and Evolutionary Meaning of the Metopic Suture," *American Journal of Physical Anthropology*, IX, 1951, pp. 193-210.

²⁰ Brothwell, *Digging Up Bones*, pp. 110-112.

²¹ As presented in Krogman, *op. cit.*, Table 49.

²² L. J. Angel, "Skeletal Material from Attica," *Hesperia*, XIV, 1945, Tables 3 and 4.

having this abnormality. Angel²³ and Benassi and Toti²⁴ have pointed out the similarity between the geographic distribution of this condition in skeletal materials and the distribution of endemic malaria. Angel suggests that the thickening is a result of a hemolytic disorder. Roentgenographic manifestations of thalassemia in living people are well known, and the thickening of the cranial vault is a classical characteristic of the disease in children and adults.²⁵ The available evidence indicates that the affected individuals from Lerna Hollow suffered from one of the forms of anemia resulting from population-level responses to endemic malaria (thalassemia or sickle-cell anemia).

The female from Grave 2 is among those with thickened parietals. It should be pointed out that maxillary prognathism, one of this skeleton's "Negroid" features, is a characteristic both of thalassemia and sickle-cell anemia.²⁶

Dental observations were hampered not only by the frequent destruction of the enamel by the burial environment but also by the frequent *post-mortem* loss of teeth. Only a few adult dentitions were complete, and even fewer immature ones. In addition, the preponderance of individuals came from multiple burials and only very occasionally could a dentition be associated with an individual complete enough to allow some estimate of the age at the time of death for adults and a surer decision regarding sex. A study of cusp morphology was not attempted because of the problems presented by mixing of individuals. However, some conclusions regarding the dental health of the sample could be drawn.

In all, fragments of 50 dentitions were examined, 48 of which were adult. All but six came from the rock-cut graves. Only one had a carious tooth and three had alveolar abscesses. Over 20 percent (eleven dentitions or dental fragments) had two or more teeth lost before death. Evidence of enamel hypoplasia was noted on five individuals from rock-cut graves and two from tile graves.

Occlusal attrition seems first to wear through the enamel at shortly before *ca.* 25 years of age, appearing as islands of dentine, and progressing slowly afterwards. Perhaps late in the fourth decade of life the occlusal surfaces are worn nearly flat. Molars show predictably greater wear than anterior teeth, but neither dental attrition

²³ L. J. Angel, "Porotic Hyperostosis, Anemias, Malaras, and Marshes in the Prehistoric Eastern Mediterranean," *Science*, CLIII, pp. 760-763; "Ecological Aspects of Paleodemography," in Brothwell, *Skeletal Biology*, pp. 263-270; "The Bases of Paleodemography," *American Journal of Physical Anthropology*, XXX, 1969, pp. 427-428.

²⁴ E. Benassi and A. Toti, "Osservazioni sulle ossa rinvenute negli scavi della necropoli de Spina," *Minerva Fisioterapica*, II, 1957, pp. 215-223.

²⁵ D. H. Baker, "Roentgen Manifestations of Cooley's Anemia," *Annals of the New York Academy of Science*, CXIX, 1964, pp. 641-661; L. E. Kellerhouse and L. R. Limarzi, "Bone Manifestations of Hematologic Disorders," *The Medical Clinics of North America*, XLIX, 1965, pp. 203-228; H. G. Poyton and K. W. Davey, "Thalassemia," *Oral Surgery, Oral Medicine, and Oral Pathology*, XXV, 1968, pp. 564-576.

²⁶ Baker, *op. cit.*, p. 644; Kellerhouse and Limarzi, *op. cit.*, p. 207; Poyton and Davey, *op. cit.*, pp. 570-571.

nor caries appear to have been serious factors affecting the health of this sample. Of course, the unfortunate loss of teeth *post-mortem* doubtless affects observations on dental pathology but the comparably low incidence of alveolar abscesses suggests a fairly good state of dental health.

SUMMARY OF THE STUDY OF THE LERNA HOLLOW SKELETONS

The sample of human skeletal material from the Lerna Hollow Cemetery, although poorly preserved, appears to reflect a population enjoying relatively good health. Sex could be determined for the adults with some degree of confidence, but the preservation and mixing of individuals in the rock-cut graves rendered assessments of age at the time of death much less frequent. Of the 26 adults whose ages could be estimated, only six appear to have entered the fifth decade of life. Although this probably indicates a short average life span by modern standards, it should be kept in mind that the total number of adults in the sample is at least 117, so there are certainly not enough assessments of age for us to be certain about mortality in this sample.

The presence of only 47 immature individuals (28 percent of the sample) is another point of interest; one would expect that there should be a higher rate of child mortality. Of the three suggested explanations for the discrepancy—differential preservation, sampling error, and alternate methods of disposal of children's corpses—the last appears to be the most reasonable.

Pathology, both oral and skeletal, seems to have been minimal. Evidence suggestive of a hemolytic disorder is present in some of the cranial fragments, likely indicating selection by endemic malaria.

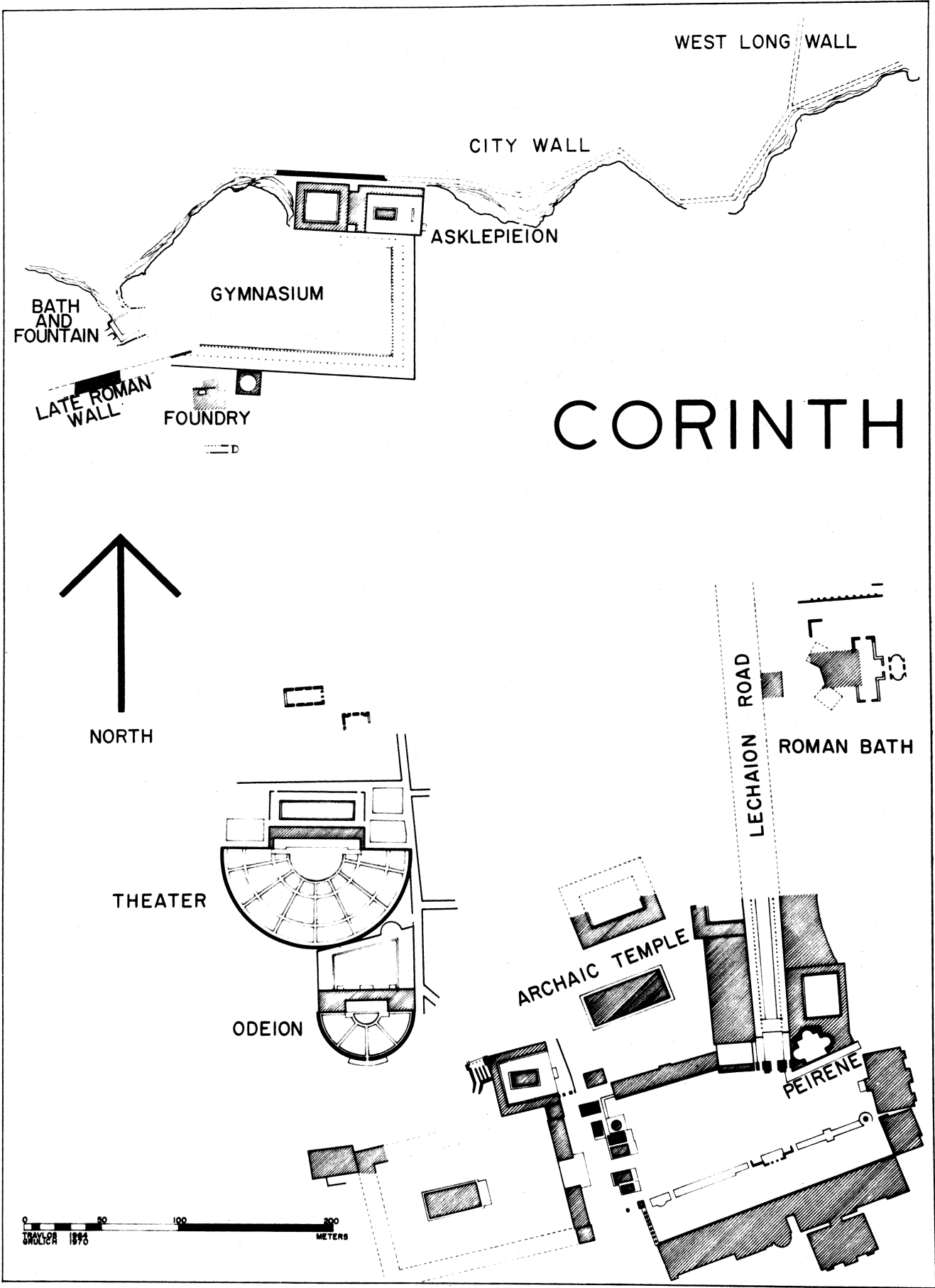
The poor preservation is particularly unfortunate since it obscures evidence of possible genetic ties among the occupants of the rock-cut graves. At this time it can only be stated that there is no reasonable skeletal evidence for familial (and presumably genetic) relationships among the occupants of the graves of the Lerna Hollow Cemetery. Familial ties are not necessarily genetic, such as in the case of man and wife. Attention should be called to Nils-Gustaf Gejvall and F. Henschen's paper²⁷ which discusses two adult skeletons from a single grave from Late Roman Corinth. The skeletons, one male and the other female, share a number of anomalies in the spinal column which suggest a close biological relationship, perhaps that of brother and sister. The preservation of these two skeletons is far better than any from the Lerna Hollow Cemetery.

AL B. WESOLOWSKY

UNIVERSITY OF ARKANSAS AT MONTICELLO

[NOW AT CHRIST'S COLLEGE, CAMBRIDGE, ENGLAND]

²⁷ "Two Late Roman Skeletons with Malformation and Close Family Relationship from Ancient Corinth," *Opuscula Atheniensia*, VIII, 1968, pp. 179-193.



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