

XXXV. A Lease of an Olive Grove

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PCol. Inv. 65 is a lease of an olive grove at Karanis in the Fayûm, in the form of an *hypomnêma* addressed to Aurelia Thermoutharion by Aurelius Isidorus.¹ It is this Isidorus to whom the well known archive belonged, and the preponderant part of the archive has recently been published in *PCairIsidor.*² Although two declarations of olive groves belonging to the mother of Isidorus appear in *PCairIsidor.* 2 and 3, the present document is the only published lease of an olive grove in the archive.

The duration of the lease is five years, the size of the property is two arouras, and the rent paid for it is one artab of olives yearly

¹ The present article is a new edition of the papyrus published in my dissertation entitled "A Lease of an Olive Grove from the Archive of Aurelius Isidorus" (Columbia University 1961). The dissertation is available on microfilm.

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The following abbreviations and short-titles appear in this article: Coutance, **Olivier**=A. Coutance, *L'Olivier* (Paris 1877); Herrmann, **Studien**=J. Herrmann, *Studien zur Bodenpacht im Recht der graeco-ägyptischen Papyri* (Münchener Beiträge zur Papyrusforschung und antiken Rechtsgeschichte, Heft 41; Munich 1958); Kapsomenakis, **Voruntersuchungen**=S. G. Kapsomenakis, *Voruntersuchungen zu einer Grammatik der Papyri der nachchristlichen Zeit* (Münchener Beiträge zur Papyrusforschung und antiken Rechtsgeschichte, Heft 28; Munich 1938); Kearney, **Dry-Land**=T. H. Kearney, *Dry-Land Olive Culture in Northern Africa* (U.S. Department of Agriculture, Bureau of Plant Industry, Bulletin No. 125; Washington 1908); Mayser, **Grammatik**=E. Mayser, *Grammatik der griechischen Papyri aus der Ptolemäerzeit*² (Berlin and Leipzig 1923-38); **SB**=F. Preisigke, *Sammelbuch griechischer Urkunden aus Ägypten* (Berlin 1915-); Schnebel, **Landwirtschaft**=M. Schnebel, *Die Landwirtschaft im hellenistischen Ägypten* (Münchener Beiträge zur Papyrusforschung und antiken Rechtsgeschichte, Heft 7; Munich 1925); Tourniéroux, **Oléiculture**=J. Tourniéroux, *L'Oléiculture en Tunisie* (Tunis 1922).

References to papyrological publications will conform to the citations in *LSJ* xliii-xlv. Three works which do not appear there will be cited as follows: *PCairIsidor.*=A. E. R. Boak and H. C. Youtie, *The Archive of Aurelius Isidorus in the Egyptian Museum, Cairo, and the University of Michigan* (*PCairIsidor.*) (Ann Arbor 1960); *PPhilSch.*=J. Scherer, *Papyrus de Philadelphie* (Cairo 1947); *PVindobBosw.*=E. Boswinkel, *Einige wiener Papyri* (Leiden 1942).

The second edition of Mayhoff will be used in citations of Pliny, *NH*.

² A list of all documents from the archive that had been published by 1953 is given by A. Bataille, *Les Papyrus* (Vol. 2 of *Traité d'études byzantines*, ed. by P. Lemerle [Paris 1955]) 24.

plus half the produce. As was usual, the lessee does all the agricultural chores; the lessor is responsible for all the public charges. *PCol. Inv. 65* is the only published lease of an olive grove in which all the essential parts of a lease—the names of lessors and lessee; the size, location, and type of land; the rent; the duties of lessor and lessee; and the date and duration of the contract—are preserved.³

The papyrus is split vertically slightly to the left of center and is marred by numerous holes and imperfections. There is a margin of 2 cm. along the top and on the left of the papyrus extending downward to line 19, where the margin has been torn away. Elsewhere the writing extends to the edge of the papyrus. There is no writing on the verso. The hand, a regular early Byzantine cursive similar to that of another document in the Isidorus archive, *PMerton 1.31* (Karanis 307 A.D.), is the same throughout, although the letters in lines 30–34 are slightly smaller than those in the body of the lease.

³ Other published leases in which olive groves or olive crops are the object of the lease are *PRyl. 4.600* (Arsinoë 8 B.C.), 2.97 (139 A.D.), *POsl. 3.136* (Euhemeria 141–42 A.D.), *PLond. 2.168* pages 190–91 (Arsinoë 162 A.D.), and *CPR 1.34* (Dionysias second century A.D.). The present document is the only published lease of an olive grove which can be dated later than the second century.

Furthermore, there are several leases concerned with land where olives were grown along with other plants, such as date palms: *SB 3.7188* (Philadelphia [?] 151 B.C.); *PPhilSch. 12*, of which there is another copy in *PSI 1.33* (Philadelphia 150 or 173 A.D.); *BGU 2.604* (Philadelphia 167–68 A.D.); 603 (Philadelphia 168 A.D.); *PAberd. 57* (Socnopaeou Nesos second century A.D.); *SB 1.5126*, published in K. Wessely, *Mittheilungen aus der Sammlung der Papyrus Erzherzog Rainer 2–3* (Vienna 1887) pages 33–36 and in *Stud. Pal. 20.70* (Dionysias 261 A.D.); *Stud. Pal. 20.79* (Hermopolis [?] 322 A.D.); *PVindobBosw. 9* (Hermopolis 331 A.D. [?]); 8 (Hermopolis [?] 332 A.D.). Leases concerned with orchards in which olives were grown with various other fruit trees appear in *POxy. 3.639* (103–4 A.D.), and in *PMasp. 2.67170* (Panopolis 564 A.D. [?]). Moreover, there are several leases concerned with vineyards in which there were some olive trees: *PFlor. 3.369* (Hermopolis 139 or 149 A.D.); *PRoss-Georg. 2.19* (Oxyrhynchus 141 A.D.); *POxy. 14.1631* (280 A.D.); *PHamb. 1.68* (Aphrodito after 550 A.D.); *PLond. 5.1769* (Hermopolis sixth century A.D.). However, in several leases concerned with land with mixed cultures there is some ambiguity in regard to the plants actually grown on the land. For instance, in *POxy. 14.1631* and in *PRoss-Georg. 2.19* it is not actually stated that olive trees were grown on the property, although olive produce is to be part of the rent paid by the various lessees. Furthermore, even in leases where it is stated that olive trees were grown, the number of the trees and whether they occupied a major portion of the land are not usually apparent. Since agricultural chores and seasons for harvesting were often different for each type of plant, I shall try to limit the variable factors by including in my discussion of these subjects only leases concerned with land where olives alone, or olives and date palms, a common combination (see Schnebel, *Landwirtschaft* 295), were cultivated.

PCol. Inv. 65

Karanis

12.5 × 24.5 cm.

300 A.D.

- Ὑπατείας τῶ[ν] κυρίων ἡμῶν Κωνσταντίου
 [κα]ὶ Μαξιμιανῶ ἐπιφανεστάτων Καισάρων τὸ γ'.
 Α[ὐ]ρηλία Θερμο[υ]θαρίω θυγατρὶ Σέκασκου λεγιω-
 ναρίου χώρ[ι]ς κυρίου χρηματ(ίζουσα) τέκνων δικαίω
 5 παρ[ὰ] Αὐρηλίου Ἰσιδώρου Πτολεμαίου μητρὸς
 [Ἡρωίδος] ἀπὸ κώμης Καρανίδος. βούλομαι μισ-
 θῶσ[α] σθ[α]ῖ παρὰ σοῦ ἐπὶ κοινωνίᾳ ἡμίσει μέ-
 ρει τὰ [ς] ὑπαρχούσας σοι περὶ τὴν αὐτὴν
 κώμην Καρανίδα ἐλαιῶνος ἀρούρας δύο
 10 ἢ ὅσας ἐὰν ὦσιν εἰς ἔτη πέντε ἀπὸ καρπῶν
 τοῦ ἐνε[σ]τῶτος ἰς (ἔτους) καὶ ἰε (ἔτους) καὶ η
 (ἔτους) ἐκπιπτόν-
 των εἰς τὸ ἰσιὸν ἔτος, διδόντος μου ἀπὸ τοῦ
 ἡμετέρου μέρους κατ' ἔτος ἕκαστ[ο]ν ἐλαιῶν
 ἀρτάβην μίαν μέτρῳ δρόμῳ τετραχυνί-
 15 κῳ. καὶ ο[ὐ]κ ἐξέσται μοι ἐντὸς τοῦ χρόνου
 προλιπεῖν τὴν μίσθωσιν κατ' οὐδένα τρόπο(ν),
 καὶ ἐγὼ ἐπιτελέσω τὰ κατ' ἔτος ἔργα πάντα
 ξηρολογίας κορμολογίας περισκαλισμούς,
 [το]ῦ ἐκ[τι]ναγμοῦ ὄντος πρὸς ἐμαὶ τὸν μισ-
 20 θούμενον, ποιήσομαι δὲ καὶ ὑποσχισ-
 μούς καὶ ποτισμούς, καὶ διεραιθυσόμεθα
 [τ]οὺς ἐπιγινόμενους καρποὺς κατὰ τὸ ἡμισί
 μέρος, τῶν δημοσίων πάντων ὄντων πρὸς
 σε τὸν κτήτορα, καὶ μετὰ τὸν χρόνον πα-
 25 ραδῶσω τὸν ἐλαιῶνα τετευχότα τῶν δε-
 [.....^{±12}.....] πάντων ὡς ἀγῶν παρέλαβο(ν),
 ἐὰν φαίνεται μι[σ]θῶσαι. καὶ ἐπερωτηθ(εῖς)
 ὡμολό(γησα).
 [Αὐρηλία] Θερμουθᾶρις μεμίσθωκα ἐπὶ
 [ἡμίσει μέρει] ὡς πρόκειται. Αὐρήλιος Μίκκαλος
 30 [ἔγραφα] ὑπὲρ αὐτῆς γράμματα μὴ εἰδότος.
 (ἔτους) ἰς[ς] καὶ ἰε[ς] καὶ η[ς] τῶν κυρίων ἡμῶ[ν]
 Διοκλητιανοῦ
 καὶ Μαξιμιανοῦ Σεβαστῶν καὶ Κωνσταν[τί]ου καὶ
 Μαξιμιανῶ τῶν [ἐπ]ιφανεστάτῳ[ν] Καισάρων,
 Μεχέ[ρ]

12 εἰσιόν 14-15 τετραχυνίκῳ 15 ἐξέσται 19 ἐμέ 21 διεραιθυσόμεθα 22 ἡμισι
 28 Θερμουθᾶριν 29 πρόκειται 30 εἰδυίας

COMMENTARY

1-2. Constantius and Maximian were consuls for the third time in 300 A.D. The year designated in lines 11 and 31 as "the

sixteenth (of Diocletian), and fifteenth (of Maximian), and eighth (of the Caesars)" was 299–300 A.D. Hence the date of this lease must be Mecheir (line 34), January 26–February 24, of 300 A.D.

3. Θερμο[v]θαρίω: cf. Θερμουθαρίς in line 28, below, and the note thereto.

3–4. Σέξσκτου λεγιωναρίου: there is a possibility that the *kappa* in Σέξσκτου should be read as an *eta*, with the name thereby appearing as Σεξσήτου. The reading in the text seems, however, to be preferable. Neither Σέξσκτος nor Σεξσητος appears among the Greek spellings of Sextus which are listed by B. Meinersmann, *Die lat. Wörter und Namen in d. griech. Papyri* (Leipzig 1927) 97.

7–8. ἐπὶ κοινωνία ἡμίσει μέρει: this phrase and the stipulation in lines 21–23—διεραιθησόμεθα [τ]οὺς ἐπιγινόμενους καρπὸς κατὰ τὸ ἡμισι μέρους—characterize this document as "Teilpacht" (for which see Herrmann, *Studien* 204–13; S. Waszyński, *Die Bodenpacht* [Leipzig and Berlin 1905] 148–59).

9. ἀρούρας δύο: according to the calculations of Schnebel (*Landwirtschaft* 304–5), two arouras supported thirty-six olive trees. Although *PCairIsidor.* 2 is a declaration of 24 olive trees, and *PCairIsidor.* 3 includes a declaration of 19/64 of an aroura of an olive grove, the two tax declarations, unfortunately, are not for the same plot of land, and cannot contribute to our knowledge of the number of olive trees planted in an aroura in early Byzantine Egypt.

10. εἰς ἔτη πέντε: five years was a rather long period. The majority of early Byzantine leases were for 3 years or less (see Herrmann, *Studien* 274–77), and all other leases of land and crops in which olives, or olives and dates, were the object of the lease were for four years or less.

10–11. ἀπὸ καρπῶν τοῦ ἐνε[σ]τῶτος ις (ἔτους) καὶ ιε (ἔτους) καὶ ἡ (ἔτους) ἐκπιπτόντων εἰς τὸ ἰσιὸν ἔτος: this phrase defined precisely the ownership of the olives which were on the trees when the lease was made. Since the Egyptian year began on Thoth 1 (August 29), and the harvesting of olives began in late October (see Schnebel, *Landwirtschaft* 308–9), the first fruits which Isidorus would gather were those which were hanging on

the trees in Mecheir (January 26–February 24), when the lease was made, and which would mature in the next Egyptian year.

12–14. διδόντος μου . . . κατ' ἔτος ἕκαστ[ο]ν ἐλαίων ἀρτάβην μίαν: olive trees bear fruit, generally, in alternate years (see Aristotle, *De plant.* 821b.15–16; cf. Pliny, *NH* 16.38.183). Inasmuch as Isidorus was to make payment in olives each year, it seems likely that the grove was divided so that some of the trees would bear fruit in one year, others in the next, a procedure favored by Columella (*RR* 5.9.11).

It is not possible to compare the rent paid by Isidorus with the rent stipulated in another lease concerned with an olive grove, since none of the five published leases gives both the number of arouras and the rent paid.

18. ξηρολογίας: this word has appeared only once before—in *SB* 1.5126.25. It refers to the gathering and removal of dry dead wood from the trees, a pruning operation which is prescribed in the *Georonica* 9.9.9: Διακαθαίρειν δὲ δεῖ τὰ ξηρά . . .

κορμολογίας: this word has appeared only once before, in *SB* 1.5126, and two schools of thought exist about its definition.⁴ Some scholars believe that *kormologia* should be construed with the words immediately following it in the list of *erga* in *SB* 1.5126.23–26 (χωματισμοῦ, ποτισμοῦ, ὑποσχισμοῦ«ς», σκαφητοῦ, ξηρολογίας, κορμολογίας ζωρύγων καὶ ὑπαγωγῶν ἀναβολὰς, καὶ τὰ ἄλλα ὅσα καθήκει . . .). This opinion can be tangibly represented by the definition offered by F. Preisigke (*Wörterbuch d. griech. Papyrusurkunden* [Berlin 1925–] s.v. “Kormologia”): “Sammeln, Zusammenbringen von Holzblöcken (für die Handschleusen zum Öffnen und Abschliessen der kleinen Rinnsale im Palm-und Ölgarten (ist Pflicht des Pächters).” Other scholars would not link *kormologia* with the words following it in *SB* 1.5126, and do not believe that it concerns work on an irrigation system, but rather that it refers to a special kind of pruning. For example, Schnebel (*Landwirtschaft* 307) wrote: “κορμολογία, worunter ich die Regulierung des Stammes verstehen möchte, die diesem seine normale Gestalt bewahren und verhindern soll, dass er zu hoch wächst, weil sonst der untere Teil steril und die Ernte allzu schwierig wird.”

⁴ For a survey of interpretations of *kormologia* see the Columbia University microfilm (pp. 12–15) mentioned in note 1, above.

Now that *κορμολογία* appears in another context it is possible to test the definitions quoted above. First of all, it should be emphasized that in *PCol. Inv. 65* the phrase *ζωρύγων καὶ ὑπαγωγῶν ἀναβολάς* does not appear, and that therefore there is no possibility of construing *κορμολογίας* with it. Secondly, it should be noted that while the other chores listed in *PCol. Inv. 65* and in *SB 1.5126* (including phrases similar to *ζωρύγων καὶ ὑπαγωγῶν ἀναβολάς*) are common enough in documents concerned with all sorts of property, *kormologia*—and *xérologia* as well—have appeared only twice, in the lease of an olive grove, and in the lease of an olive-and-date grove. They seem to be particularly associated with olive trees and perhaps with date palms (see Kapsomenakis, *Voruntersuchungen* 39). Thirdly, it is important to realize that, although *kormologia* is found in only two leases, other leases concerned with land where olives were cultivated contain provisions for pruning: *δενδροκοπία* in *POsl. 3.136.11–12*, *περικόπτειν* in *IG xiv.645*, Table 1.173; *καθαρισμός* in *PLond. 2.168* (pages 190–91) 11. Fourthly, in view of the fact that, despite their assertions that olive trees require little care,⁵ both ancient and modern writers still insist upon the importance of pruning,⁶ it seems most likely that a word for pruning would appear in a lease of an olive grove, particularly if the text were completely preserved in the section where the *erga* were listed, as, indeed, the apposite section in *PCol. Inv. 65* is completely preserved. Fifthly, the word *κορμολογία* seems to have been formed from *κορμός*, which commonly refers to the trunk of a tree (see *LSJ*, s.v.), and a termination *-λογία*, which may be rendered as “the action of attending to” (see Kapsomenakis, *Voruntersuchungen* 39). Hence Schnebel’s interpretation of *kormologia* seems more probable than the definition proposed by Preisigke.

περισκαλισμούς: the *καρρα* is uncertain on paleographic grounds. However, the beginning, *περι-*, and the ending, *-αλισμούς* are easily legible, and no other word with this beginning and termination except *περισκαλισμούς* can be found which satisfies the requirements of the context.

⁵ See Columella, *RR* 5.8.1–2; Vergil, *Georgics* 2.420; Coutance, *Olivier* 174.

⁶ The advisability of pruning, sometimes even twice a year, is emphasized, e.g., by Theophrastus, *HP* 2.7.2–3; the *Geoponica* 9.9.5–12; Cato, *RR* 44; Columella, *RR* 5.9.15; 11.2.41; Palladius, 12.4; Pliny, *NH* 17.18.127; Varro, *RR* 1.30; Coutance, *Olivier* 197–201; and Tourniéroux, *Oléiculture* 84–85.

Although the compound substantive *περισκαλισμός* has not been attested heretofore, forms of the related verb—*περίσκαλον* and *περίσκαλλε*—were employed in the *Geoponica* (5.42; cf. 12.18.4 [*apparatus criticus*]), in a context concerned with viticulture. The uncompounded substantive, *σκαλισμός*, has appeared in two vineyard leases (*POxy.* 14.1692.18–19; and in an unpublished document, *PCol. Inv.* 513.15), and the related substantive, *σκαλμός*, may be seen in another vineyard lease (*POxy.* 14.1631.12–13). In their commentary to *POxy.* 14.1631.10–11, Grenfell and Hunt suggested that the Latin equivalent of *σκαλισμός* and *σκαλμός* was *occatio*, “the breaking up of clods,” but they did not offer verification of this equivalence.

Hesychius, s.v., and the authors of the *Suda*, s.v., explain *σκάλλοντες* by *σκάπτοντες*. *Σκαφητός*, a substantive, related to *σκάπτοντες*, is employed frequently in papyri in connection with olive culture, both in leases concerned with groves in which olives were grown (*SB* 3.7188.14, 1.5126.24, *PLond.* 2.168 [pages 190–91] 11), and in letters of instruction for workers in the groves (*PFlor.* 2.197.4; *σκαφητρός* is the spelling in *PFay.* 112.2–3, 15–16, and in *PRyl.* 2.245.21). And yet, *σκάλλειν* and *σκάπτειν* cannot describe exactly the same operation, for *σκαλισμός* (and *σκαλμός*) and *σκαφητός* are listed as distinct *erga* in *POxy.* 14.1692.13–14, 18–19, and 1631.10–13. *Skaphêtos*, Grenfell and Hunt suggest (note to *POxy.* 14.1631.10–11), describes “the preliminary digging,” while *skalismos* (and *skalmos*) describes the later “breaking up of clods.” Moreover, words related to *skallein* and *skaptein* respectively appear together as descriptions of different operations in Theophrastus (*HP* 2.7.5), in Aristotle (*Mir.* 837b, 21–22), and in the *Geoponica* (2.24.1).

The distinction between *σκάλλειν* and *σκάπτειν* can best be clarified by an examination of the Latin equivalents of these words. The verbs most commonly used by Latin agronomists in connection with the working of the soil in an olive grove are *ablaqueare*, *circumfodere*, *fodere*, and *occare*. According to Grenfell and Hunt (note to *POxy.* 1631.10–11), *ablaqueatio* is the equivalent of *γύρωσις*, “the digging of a circle round the vines, i.e. ‘earthing up.’” This equivalence can be confirmed by a comparison between two passages concerned with olive culture, one from Columella (*RR* 5.9.16–17), the other from the *Geoponica* (9.9.1).

Circumfodere appears several times as a chore which is performed

after *ablaqueatio* (Columella, *RR* 11.2.40; *De arb.* 5.5; cf. Pliny, *NH* 17.19.140), and seems to correspond to *περισκάπτειν*, an activity which, in the discussion of olive culture in the *Geoponica* (9.9.2), is mentioned directly after *γύρωσις*. The tool used was the *bidens* (Columella, *RR* 5.9.12).

Fodere seems to correspond to *σκάπτειν*. The object of the activity denoted by *fodere* was to pulverize the soil, and thereby prevent the growth of weeds. The tool to be used was the *bidens* (Columella, *RR* 4.17.8) or *δίκελλα* (*Geoponica* 2.23.12).

Occare seems to be the equivalent of *σκάλλειν*. The *occatio* was performed on land which had been seeded in order to work the seed into the soil, and to break up clods (see Columella, *RR* 11.2.82; 2.4.2; Varro, *RR* 1.29.2–3); on land where vines or trees were grown this chore was performed in order to extirpate weeds, and to break up clods so that the roots of the plants might be covered with the pulverized earth (see Varro, *RR* 1.31.1; Columella, *RR* 11.2.60; Palladius, 4.7.1–2). According to Pliny (*NH* 18.20.180; 18.16.145), the *occatio* might be done with a *cratis*, an instrument which was set with teeth (*NH* 18.18.173). Servius (*Comm. in Verg. Georg.* 1.95) gave as a synonym for *crates* the word *irpex*; Cato (*RR* 10.2) included the *irpex* in the list of equipment necessary for an olive grove. Varro (*LL* 5.31.136) defined *irpices* as “regulas compluribus dentibus, quam item ut plaustrum boves trahunt ut eruant quae in terra ser<p>unt. . .”

The purpose of the process called *σκάλλειν*, according to the description of this operation in the *Geoponica* 2.24.1–2, was to help in working the seed into the soil, probably to complete the breaking-up of clods and to eliminate weeds and cover roots. The instrument used was drawn by oxen. Furthermore, in the *Geoponica* (9.5.9) the recommendation that a reed be placed next to each olive tree in the nursery so that the *σκάλλοντες* would be able to recognize the presence of a tree implies that they did not work close to the soil, as the *σκάπτοντες* with a *δίκελλα* did, but were probably using an instrument drawn by animals. Inasmuch as the operations described by *occare* and *σκάλλειν* were performed to accomplish similar objectives, and animals might be employed to draw the instruments for both chores, it seems most likely that the Latin equivalent of *σκάλλειν* is *occare*.

Now that we have seen that *ablaqueatio* is roughly equivalent to *γύρωσις*, *circumfodere* to *περισκάπτειν*, *fodere* to *σκάπτειν*, and

occare to σκάλλειν, it is interesting to compare a passage from Palladius with one from Columella, who was one of the sources of Palladius. In the following words Palladius (6.4.1) recommended that the *occatio* for vines and trees be performed in May: “Hoc mense arbores et vites, quae ablaqueatae fuerant, occare, hoc est, operire iam convenit. . .” Columella (*RR* 11.2.40), likewise in recommendations for work to be done in May, wrote: “Arbores quoque tempus est ablaqueatas circumfodere, et operire. . .” The two passages taken together make it clear that the activities described by *occare* or the operations referred to by *circumfodere* might be performed in May after the *ablaqueatio* but before the roots were covered. The soil was worked at this time in order to break up the surface and heap the loosened earth over the roots of trees and vines as a defense against the summer sun. Moreover, we have already seen that essentially the same end, breaking up the surface of the soil, could be attained by a *fossor* doing the *fossura* which followed the *ablaqueatio* (Columella, *RR* 4.14.1–2).

The purpose of working the land in a olive grove is to pulverize the soil and to extirpate weeds, and the words used to describe the various chores performed to attain these objectives are *occare* (σκάλλειν), or *circumfodere* (περισκάπτειν), or *fodere* (σκάπτειν). Since words related to σκάπτειν have appeared among the *erga* in three leases and three letters concerned with land where olives were cultivated, and since a word related to σκάπτειν is not stipulated among the *erga* listed in *PCol. Inv.* 65, it is much to be expected that a word related to σκάλλειν, e.g. περισκαλισμός, should appear in its stead. This statement may be made without prejudice to the view set forth above, that σκάπτειν or *fodere* and σκάλλειν or *occare* do not refer to precisely the same operations; the former was performed by human labor alone working with the *bidens* or δίκηλλα, while a *cratis*, a harrow, which was drawn by oxen, could be employed for the operations described by *occare* (σκάλλειν).

20–21. ὑποσχισμούς: for the meaning of this term, which signifies intensive plowing, see Schnebel, *Landwirtschaft* 106, 246, 306.

Columella (*RR* 5.9.12) insists that olive land be plowed at least twice yearly, and the modern practice, likewise, is to plow two or more times a year, especially after the harvest, when the earth

has been packed down by the traffic of the olive-gatherers, and later in the spring, after the trees have begun to bloom (Kearney, *Dry-Land* 25–26; cf. Tourniérroux, *Oléiculture* 65–66). An instance of plowing an olive grove in springtime may be cited in *PFay.* 112.3.5, which is dated Pachon 26 (May 21), 99 A.D.

21. *ποτισμούς*: the provision for irrigation is extant in all the papyrus leases of groves and crops of olives and of olives and dates in which any *erga* at all are named (*POsl.* 3.136.9; *PLond.* 2.168 [pages 190–91] 11 [see *Berichtigungsl.* 1, page 262]; *SB* 1.5126.24; 3.7188.12; two copies of the same lease: *PPhilSch.* 12.22 and *PSI* 1.33.21–22). Not only the leases but also several letters from owners of olive groves (*PFay.* 110; 118; *PBaden* 2.33) show that irrigation was a matter of great concern. Theophrastus (*HP* 2.7.3), on the one hand, reports that the olive is one of the three trees which require the most water, but nowadays it has been demonstrated that olives may be cultivated in dry climates with no water other than rainfall (see Kearney, *Dry-Land*). Obviously, according to the leases and letters, the practice in Egypt was to irrigate olive groves, but the extent of this irrigation is not known. In olive plantations in modern Tunisia the amount and time of the irrigation depend on the dryness of the season and the degree to which the soil absorbs water. Since most of the rain falls, as it does in Egypt, in the winter, it is not so necessary to irrigate then as it is in the hot months of summer and autumn, when the olives are ripening. Olive plantations, therefore, are usually irrigated at the end of the summer (Tourniérroux, *Oléiculture* 104–7). The scanty evidence which is extant indicates that the practice was the same in Egypt in antiquity, for in a letter (*PFay.* 110.14–18) dated Germanicus (Thoth) 14, which is September 11, and in another letter (*PFay.* 118.24–25) dated Hathyr 10, which is November 6, an owner directs that his olive grove be irrigated.

25–26. *τετευχότα τῶν δε*[...^{±12}...] *πάγτων*: while *τετευχώς*, the perfect participle of *τυγχάνειν*, was frequently employed in papyri (Mayser, *Grammatik* 1.2.151–52), in the Columbia papyrus it appears for the first time in a *paradosis* clause. Since the *paradosis* frequently sets forth the condition in which the property must be at the termination of the lease, the restoration of the lacuna as *δε[όντων ἔργων]*—a restoration which Professor Youtie favors—and the translation “having had the necessary tillage”

may be suggested. A parallel for the meaning "having had," which is required of *τετευχότα* in this clause, may be observed in a receipt for wages in *POxy.* 1.91.17–20: *τὴν θυγατέρα . . . τετευχύαν πάσης ἐπιμελείας.*

28. *Θερμουθάρις*: names terminating in *-αρις* are masculine names. This spelling, therefore, as Professor Youtie observes, must be a mistake for *Θερμουθάριν*, which is a variant of *Θερμουθάριον*, which is, in turn, the nominative of *Θερμο[υ]θαρίω* in line 3, above. Thermoutharion and related names were common in the Karanis area.

28–29. *ἐπὶ [ἡμίσει μέρει]*: the restoration was suggested by Professor Youtie, who cites *ἐπὶ κοινωνία ἡμίσει μέρει* in lines 7–8, above. Another possible reading in this lacuna would be *ἐπὶ [ἡμίσει καθ]ὼς πρόκειται*, which is similar to the formula employed in *POxy.* 2.277.17–18.

34. *Μεχέλ[ρ]*: the papyrus is torn here, and the numeral which would indicate the day of the month is missing.

TRANSLATION

In the third consulship of our lords Constantius and Maximian, most noble Caesars. To Aurelia Thermoutharion, daughter of Sextus, a legionary, who is acting without a guardian by virtue of the *ius liberorum*, from Aurelius Isidorus, son of Ptolemaeus, his mother being Herois, of the village Karanis. I wish to lease from you on a basis of half-shares the two arouras, or however many there may be, of an olive grove belonging to you in the vicinity of the same village of Karanis, for five years [reckoning] from the fruits of the current sixteenth, fifteenth, and eighth year, which mature in the coming year, it being my obligation to give from my portion each year one artab of olives by the four-choenix dromus measure. And it shall not be permissible for me to abandon the lease within the term in any way, and I shall accomplish all the yearly chores, gathering and removal of dry, dead branches, pruning, harrowing, the harvesting being my responsibility as the lessee, and I shall do both plowing and irrigating, and we shall divide the harvests in half-shares, all public charges resting upon you, the owner; and on the expiration of the term I will

surrender the olive grove having had . . . , as I also received it, if you agree to make the lease. And when the formal question was put to me, I [Isidorus], made acknowledgment. I, Aurelia Thermoutharion, have made the lease on half-shares, as stated above. I, Aurelius Mikkalus, have written on her behalf, since she is illiterate. Year 16, 15, and 8 of our lords Diocletian and Maximian, Augusti, and Constantius and Maximian, the most noble Caesars, Mecheir.