GEORGE M. PARASKEVOPOULOS : CONTRIBUTION TO THE STUDY OF THE OPHIOLITES

CON

ΠΡΑΓΜ

ΤΟΜΟΣ

CON

ΓΡΑΦΕΙΟ

ΠΕΡΙΛΗΨΙΣ

1. Γεν
2. Γεν
3. Φλε
   α. Β
   β. Μ
   γ. Κ
   δ. Σ

I. OI

1. Ἡ ἔννοια

Ὁ ὅρο
ἐχρησιμοποι
πετρώματος
χαρακτηριστ
ἑρπετά. Ἐν
«πρασινοπετ
γενῶν πετρω
συνδεομένων
λιθος» βαθμι
ποιήθη ἀρχι
ἐχόντων «συ
μάγματος (G

Ἡ σύν
τὴν ἄποψιν ὅ
καὶ ὑπερμαφ
κάτωθι τύποι
Ὑπερμαφικὸν
μορφωσιγενῆ
Γαββροϊκὸν
textures), συν
Μαφικὸν ἄθρο
Μαφικὸν ἄθρο

Εἰς τὴν
σ. 156), μιᾶς
δεδομένα καὶ

2. Ἐξέλιξι

Ὁ Ν.
περιδοτιτῶν
ἀνώμαλος τ
ἐὰν σπανίω
μεταμορφώσ
χρόνον τῆς
χαμηλῆς θε
συμμετοχὴν
πολτὸς οὕτω
βοήθειαν τῶ

Ὀλίγο
γεωλογικὸν
Μεσογείου,
ὀφιολίθων,
Ἀπεννίνων
ἐπιμήκων ρ
τριαδικοῦ ὑ
πλακόλιθον
λίθων ἐξηγε

Τὴν κλ
τοῦ γεωσυγκ
Borchert καὶ

Κατὰ τ
τοῦ ἀλπικοῦ
διὰ διεισδύσ

Ὁ Η.
ἐπαφῆς ὑψηλ
λίαν διαδεδο
περιδοτιτικο
περιέχει ὕδω
θὰ ἐγένετο ἡ
σερπεντινίωσ
Bowen καὶ ὁ
ὑπάρξῃ περι
εἶναι νὰ ὑπά

Ὁ J. B

γμάτων διετ
λίθων. Τὸ μ
ρικὸν αὐτοῦ,
νης τοῦ γεω
ἐψύχθησαν
προστατευόμ
τμήματα παρ
τοὺς σπιλίτα
ἀνήκουν εἰς

Μίαν ἐ
Roever (195
ἀλπικοῦ τύπ
ἐκ τῶν ἀνωτ
πρὸς τὸν φ
καταστάσει.
τοὺς ὑπολοί
χαλάρωσιν τ
νου, λαμβάν
μάγματος πρ
τελευταῖα ταί
βεβαίως καὶ
(καὶ σερπεντ
θεωρηθοῦν ἢ
μορφώσεως.

Ἡ ἀνά
τὴν παγκοσμ
πρώτων θεμά
πυθμένων τῶ
Γεωτεκτονική

3. Περιοχαὶ ἀ

Ὡς περ
εἶναι αἱ κάτω
α) Αἱ «κανον
ἀποκλινουσῶ
δημιουργίας τ
λεκάνης καὶ

ἐσωτερικαὶ
λιθοσφαιρικ
3). δ) Τὰ ρή
τῶν δύο γε
ρηγμάτων. ε

Εἰς τὸν
ἀναλόγως το
αὐτὸν συγγρ
ἀναλόγως το

᾿Ελλεί
σμὸν τοῦ τε
χρησιμοποι
νίων ράχεων
προβληματι
(LIL στοιχεῖ
κῶν ἀναλογι
βοηθητικὸν
μάτων μεταξ

Κατὰ τ
νησιωτικῶν
ρίζονται ἀπὸ
(LIL στοιχεῖ
ὀξειδώσεως)
Αὐτὸ τὸ χαρ
Cr ὡς καὶ
ἀποτελοῦν δ
ἑνὸς καὶ τῶ
κρασπέδων
Marianas το
λιθοσφαιρικ
τῶν βασαλτῶ
εἰς H_2O, K,
δημιουργίας
ἀκόμη, ὅτι
περιβάλλοντ
ἀπισχνανθέντ
ὠκεανίους λε

τικοῦ (μεταξ
μεναι ἀπὸ
σημαντικῶς
κεανίων ράχ
βαθμοῦ μέρι
τοὺς βασάλτ
ὅτι δέον ν'
βασάλται τῶ
τας, μεταβατ
'Επὶ προσθέ
λεκανῶν κρα
σημαντικὴ ὅ

II. T

Ἡ πλή
πλήρη σειρὰ
χαρτσβουργῖ
θαλάμου, εἰς
ἀποτελουμέν
βρους καὶ μί
μένην ἀπὸ μ
ρίτας) καὶ πλ
τὰς ρίζας του
μάτων. 4) "Ε

1. Τεκτονῖται

α. Ὑφὴ

Οἱ τεκτ
πλῶς συντεθλ
πετρώματος κ
τεμαχισμοῦ τ
καὶ τῆς παρου
ἰδίᾳ τοῦ ὀλι
χαρακτηρίζου
ὀλιβίνου καὶ

τεκτονῖται
στρωματοει
Τὰ ἰσ
ὀλιβίνου κα
γματος τοῦ
ὀλιβίνου δε
μορφώσεως)
(εἰκ. 5a) καὶ
μορφώσεως)
ἐπίπεδον τῆ
ειδοῦς ἀνα
δὲν δεικνύο
εἶναι προσό
τοῦ ἐλλειψο
τὴν γραμμικ
μορφώσεως)
ἐνῶ τὸ διάγ
ἀσαφὲς (εἰκ
Αἱ ἐπι
τὰς ἐπιφανει
τὴν στρῶσιν
στικὴ παρα
τοιαύτη, συν
προσανατολ
Οἱ Α.
τεκτονιτῶν,
κοκκώδη ἔ
μετρίας κατ
πλαστικὴν
Km. Εἰς πο
ζώνην βάσε
ἐν ἐπαφῇ μὲ
(ἀμφιβολίτα
στατικὴ αὐξ
ὑπέστησαν
1kb ἐγγὺς τ
ταύτης, εἶνα

καὶ προσανα
σεις ὠκεανίω
μεσοωκεανίω
ὠκεανίων τά

β. Πετρ

Οἱ τεκτ
θεωροῦνται ο
ὑλικοῦ, τὸ ὁ
τήξεως σχημ
ἄνω, ἤτοι πρ
Κατά τινας
χαρτσβουργι
χρωμῖται, κα
ἔχουν μαγματ
μανδυακοῦ ὑλ

Τὰ χρω
μορφὴν φακο
(podiform). ῞
τοποθετοῦντα
σειρᾶς. Χημι

Τὰ ὅριο
κτηρίζονται δ
(φωτογρ. 1).
δουνίτου μετα
πυροξένων κα

Σήμερον
ἐντυπωσιακὴν
τῶν χαρτσβου
κλινεῖς πυρόξ
μικρὰν ποσότη
οἱ χαρστβουρ
συμμετέχουν
χοντα πετάλια

2. Πετρώμ

Τὸ ἐ
ἀποχωρίζετ
1-2 Km κά
σίας μεταξ
μεταβολὴν
κατ' αὐτὸν
τμήματα αι
νιτῶν, τροκ
ὀροφὴν το
μικρογάββρ
τοῦ θαλάμ
προοδευτικ
θερμοκρασ

α) *Κα*

Εἰς τὴ
τισμὸς τῶν
1) Τὰ σωρ
ἀποτίθενται
3) τὰ σωρει
κρυσταλλώ
ὀρυκτῶν. Συ
σειρᾶς διὰ
Τὸ γενικὸν
δουνῖται (κ
διαδοχικῆς
κρυσταλλώ
ροποιήσεως
ἐνεργότης
κρυσταλλώ
κορεσμένων
θεωροῦνται
θαλάμου. Ἡ
ἀλκάλια, ἰδί
τῶν σωρειτ
σωρείτας οἱ

σύστασιν πέ
τῆς κρυσταλ
βασικῶν πλ
σύστασις το
πυροξένων
ἐλαφρὰν μόν
σωρείτας πα

Οἱ μαφ
σειρᾶς καὶ ἐ
ἀπὸ συντηκτ
σύστασις τοῦ
ὑπάρχουν ἔχ
μετὰ τῆς διαφ

β. *Ἀνα*

Ἡ ἀνα
βάθους) παρ
δημιουργεῖτα
(δολερίτας),
συστήματος
ἀνωτέρας σει
ἀνωτέρας σει
βασικοῦ τήγμ
ὡς «πλαγιογρ
τας, ἀλκαλικ
Οἱ πλαγιογρ
ἀνωτέρας σει

Παραδει
σειρᾶς ὡς κα
Ἐπίσης παρέ
κλινῶν πυροξ
Τουρκίας (εἰκ
εἰς τὸν πίν. 8

3. Σύστημ

α. *Γε*

Ἡ δ

ἀπὸ διαδοχ

ἄλλης, εἰς

τητα (φωτ

ράχιν εἰς ὀ

κανονικότ

παρειὰ τῆ

ὁποίας δια

πλαγιόκλα

δῶς δὲ δύ

διαπιστωθ

καίτοι εἰς

θεωρητικὸ

αἵτινες ἐνί

εἰς τὸ σύμ

β. *Σχ*

Αἱ δια

δολεριτῶν,

(φωτογρ. Ι

διακρίνοντ

πίλλοου λ

συστήματο

πετρωμάτω

Ἐν τ

στημα πολλ

μᾶζαι διαβό

σεις. Οὕτω

γνώρισμα π

Τὰ πε

ἔκχυτα βασ

σύστασίν τ

βαθμόν, παρ

πρασινοσχι

ὠκεάνιον π

ἀπολέσουν (
εἰς ζώνας ὁρ
των. Οὕτω,
ἐκφράζουν τ
ἀρχικῆς συσ

Οἱ J. F
ὡρισμένα ὀλ
τὴν περιεκτι
σεως χαμηλο
στοιχεῖα τῶν
λαπλῶν διαβ
στοιχεῖα τῶν
Senechal, 197
TiO_2 καὶ P_2O

Μία σε
διαβασικῶν

4. Ἔκχυτα π

Μεταξὺ
πίλλοου λάβ
ὑποθαλασσία
ἐπικρατοῦντε
παρουσίαν φ
ἔκχυτα πετρώ
θολεϊῖται ἔχ
μικροφαινοκρ
ἐξώτατον ἀπ
ὑλικόν, δύναν
λων πλαγιοκλ
καὶ μικρόλιθ
θρυμματισμοί
ἐσωτερικὸν τ
ἢ ἐνδιάμεσος
τελοῦν τὰ κ
Παρουσία ρο
μεγάλη τότε
τρώσεις τῶν

(MgO+FeO
διαφόρου β
σεως (FeO
Εἰς ὡ
γενικῶς τῶ
ἑκάστην ἐκ
εἰς στοιχεῖ
θικῶν συμ
εὑρίσκοντα
ἐνῷ αἱ πίλλ
ἄλλα συμπλ
εἰς τὴν παλ
Εἰς τ
πίλλοου λα
τῶν κατωτέ
της εἰς Na
τῆς μεταμ
δημιουργή

III. ΕΓΚΛ
ΠΟΙ

Οἱ χα
θεωροῦνται
τῆξιν πρὸς
φεῖς ὑποστ
πρέπει νὰ
παρουσίαν
πετρωμάτων
γαββροϊκῆς
τήτων τήγμ
πλαγιοκλασ
διαφυγόντα
μόνον πολὺ

1. Προϊόντα
μονοκλινῶν

῾Ως π
φλεβίδια πλα
σεις καθ᾽ ἄς
τὰς ἐπιφανε
μεταξὺ δύο
φλεβιδίων «i
κῆς παραμο
συνδέεται κα
φλεβίδια ἔχο
αὐτῶν συνδέ
῾Η ἀνάπτυξι
περιβαλλόντ
γραμμικῆς δ

᾽Εκ πα
κοῦ χώρου, ὁ
μονοκλινῶν
ἀποτελεῖ τὸ
ἐπαφήν του μ
καὶ ἐντονώτε
ἀνάπτυξιν. ῾
ξένων, τὸ πε
Εἰς τὰς συγκε
μετὰ τῶν φλε
τὸ αὐτὸ δὲ συ
«in situ» τῶν
εἶναι σαφῆ (
συγκεντρώσε
πετρώματος.
νὰ ἔχῃ κάποιο
προσανατολι
πλαστικήν, ἐ
εἰς τὸν μανδ

᾽Απὸ πλ
ἀρχικῆς φάσ
κρυστάλλων μ

πετρώματο
'Επεχειρή
ὀρυκτῶν τ
περιβάλλο
νατολισμο
ἀκτίνων R
διαγράμμα
ἑδρῶν (220
στικοῦ λε
γενομένας
Πολυτεχνε
θερμότατα
κλάσεις τ
δὲ ὑπ' ὄψι
ἡ ζώνη αὐ

'Η σ
συγκεντρώ
πυροξένων
εἰς τὸ 'Ερ
λυτοῦ Mic

'Η π
(βυτοβνίτη
τρόπου γε
ἀνατήξεως
διάφορος ἰ
συγκεντρώ
συγκεντρώ
πολὺ μικρὰ
δημιουργία
τρώσεις θὰ
ἀλλοτριομό
ἔνθα ἀναφέ
εἶναι λίαν
πρὸς τὰ ἄν
εἴτε ἔδωσε
στολιθικῆς

συνεπῶς δύνα
«in situ» συγ

2. Προϊόντα
κλασμάτων ὁ

Ἐξ ἐλλ
συγγραφέως ἐ
α) γάββροι ἐν
ἀνώτερα τμήμ
τοὺς ὁποίους
τεκτονιτῶν, κ
τελικῶς ἐλλεί
κατὰ κανόνα μ
πυροξενιτῶν τ
κοκκοι. Ὁ π
δηλοῖ, ὅτι οἱ π
ρυθμὸς πτώσε
πυροξενιτῶν
πυροξενιτῶν
χαρακτῆρα δι
γάββρων καὶ π
ρων τοὺς ὁπο
τὴν θέσιν, τὸν
τοῦ ἑνὸς πρὸς
μεταβατικῶν (

Εἰς τὸν
(γάββροι διεισ
πλέγματα. Ἐκ
βασικότης τῶν
τὸν πίν. 19. Ἐ
πλαγιοκλάστω
ἀπόκλισις τῆς
πλαγιοκλάστω
κῶν τούτων συ
θαλάμου, αἱ ὡ
ἀνατήξεως τῶ
προηγουμένως

Ἡ (
οὐχὶ σπαν

α) Ε
ἀρχικοῦ π
πορεία πρ
ὅμως νὰ δ

β) Ε
παρέμεινα
μαγματικο

γ) Ε
εἰσέδυσαν

Ἡ
ὁμογενοπο
τεκτονιτῶν
τρώσεις «
συστάσεω
γεγονὸς τ
νιτῶν, ἢ
πετρωμάτ
ὁ περιβάλ
τῆς ψύξεώ
συνηγορεῖ
ὑπολοίπων

Ἐν
διαφοροπο
τεκτονιτῶν
ὀξινώτερα
χωνται ἐκ
γειτονικῶν
προέρχωντ
θαλάμους.

3. Φλέβες

Κατ'
τεκτονιτῶν
συνήθως λ
φλεβῶν κα

ὁποῖον σημ
στάλλωσίς
ψυχρὰν κατ
ἐγένετο εἰς
γάββρων κα

Εἰς τὴ
τεκτονίτας,
ἐπίσης τοὺς
πολλὰ σημε
πτεροειδεῖς-
διαβάσου δ
Σταυροποδίο

Χημικ
ἀπὸ τὰ συμ

Ἐκ τῆ
ἐντὸς τῶν
συμπεράσμα

α) Με
μεταβατικοῦ
διεισδύσεως
ἱστὸν καὶ π
βάσας.

β) Μέ
κρυσταλλώσ
πετρώματα τ
θικὸν ἱστὸν
χαρακτηρίζο
στων ἐμπλου
συναντῶνται
Ἡ σχέσις F
μεταξὺ 0,28
ὁλικὸς σίδη
μένων τηγμά

γ) Ἐν
Συνηντήθησ
Βοθικίου-Στ
ἀπὸ σπινοει

'Ο σπινοει
ἀδρομερῆ κ
διασταυρου
Μεταξὺ τῶν
θυσανοειδε
δημιουργοῦ
ξένου. 'Ο λ
πυροξένων,
ὑπερκορεσμ
διάρκειαν
ταχεῖαν ψῦ
τήγματος (
θεωροῦνται
καὶ τῶν σκε
τὴν σπουδο
ἦσαν ὑψηλ
τήγματος σ
συστάσεως,
ἐνίοτε μὲ δ
χρωμίτου.
κυμαίνεται
διαφοροποι
ARG_1 καὶ
θεωροῦμεν
τῶν ὁποίων
'Εφ' ὅσον

1. Θάλαμοι

'Εφ'
τοῦ θαλάμο
τότε εἰς τοια
θ' ἀποτελῆ
καὶ μεταγενε
λώσεως τοῦ

κτοῦ συστήμ
τύπους τῶν
φλεβῶν καὶ κ
σωρειτικῆς σ
ρᾶς προσομο
ὀφιολιθικὰ σ
σειρὰν τοῦ σ
Πίνδου (Γ.

῾Η κεκ
τῆς σωρειτικ
βάσεως μέχρ
διὰ τὴν διάκρ
Hopson (198
ὀλιβίνου καὶ
εἰς ᾿Ομάν,
μάγματος εἰς
θαλάμου τοῦ
εἰς τοὺς θαλ
ποίησις εἰς
τηθεῖσαν περ
Fe_6), ὁ ὀλιβί
πυροξενίτας,
τῶν πετρωμά
σεως. ῎Εχομε
σωρειτικῆς σ
θὰ εἶναι αἰσθ
ὀρυκτῶν, συν
εἰσόδους νέο
θαλάμου εἶνα
ἐπαναστροφα
θαλάμους κλ
εἰς τὴν μεγαλ
εἰς τὴν μεγα
ὑπολογισθεὶς
περιεκτικότη
σπάνιαι γαῖαι
καὶ προερχόμ

διαφοροπο
TiO_2 καὶ
κλειστοῦ
FeO*: Mg
τέραν περ

2. Λειτουρ

Εἰς τ
τὸ τῆγμα μ
πρὸς τὰς
Τοιαύτη λ
ἐρχόμενον
θαλάμου
παρατηρή
σημαντικῶ
λαμβάνῃ χ
ἠδύνατο ν
οὖσα ἐκ τῶ
ὅτι ὑπάρχ
πλευρικῶς
θαλάμων μ

᾿Απὸ
ρυθμὸν ἐπε
ὅλον τὸ εἰ
περισσότερ
FeO*:MgO
μεγάλου θα
εἰς τὸ γεγο
θάλαμον με
σύστασιν
μεταβολῆς

Οἱ C
θαλάμων κ
τικὴ ῥάχις
αὐτῆς ἀνα
ρεύματα δ
Κατανομὴ

εἰσρέοντος
τῆς κεντρικ
τρόπον διά
εἰσροὰς ἀδι
κτοῦ συστή
σαν εἰς τὴν
τικόν, μεγά
ἔρχεται ἀπὸ
ἀπ᾽ εὐθείας
μιχθῇ μὲ τὰ
λων τῶν ὀρ
σωρειτῶν τ
τὸ διερχόμ
῎Ανωθεν τῶ
λάμου. Λέγ
σωπεύει οὐ
ἐπέλθη ἐκ τ
ἀναφέρουν
σας τὴν σω
21), τὰς ὀπ
τῶν ὀφιολί

Μεταγ
καὶ εἰς ἀσυ
λερζολίθου
τὴν ἐπιφάνε

3. Διαφορο

῾Η κρ
ποσοτήτων
(normative)
σωρειτικῆς
ἐσυνεχίσθη
βασικοῦ πλ
μεταβολὴν
πικριτικῆς
σύστασιν β
διαβασικῶν
τοιούτου β

θολεϊιτικῶ
θάλαμον, τ
τεραιτέρω
πλαγιογρα
ὀφιολίθων
τῶν περιοχ
σωρειτῶν,
διαφόρων ὁ
κότητας εἰ
Λόγω
πρωΐμως ἀπ
δύνανται
πετρολογικ
μητρικοῦ μ
κλασματικ
πλαγιοκλάσ

1. Γενικαὶ

Ἐκ
μάγμα ἐκ τ
(μητρικὸν)
μερικῆς τήξ
τῆς κρυστα
κλασματική
(1980) προτ
ἔδωσε γένε
σθὲν εἰς τὸν
μόνον διαφ
διηρεύνησα
ἁπλουστευμ
πιέσεων 20
ρασίαν 130
κλαστικῶν
σμὸν ἀμετα

τῆς ἐποχῆς
προέρχωντα
μανδύου κα
σταλλώσεως
ζουν τὰ π
πιέσεις. Οἱ
κῶν πυροξέ
ράχεων διὰ
παρατηρήσε
Οὕτω, ἡ χημ
λιθικῆς σει
σίδηρον κα
διάρκειαν τ
κοὶ σωρεῖτα
τοῦ πρωτογε
ὅτι οἱ ὀφιολ
μάγμα ἀλλὰ
πετρωμάτων
ἀσυνήθους σ
ποιημένα, τ
θεωρεῖται π
μητρικὰ μάγ
ὑλικοῦ, τὸ ὁ
τὸν σχηματι

2. Γενικαὶ π

'Ελέχθ
σωρειτικῆς σ
συνολικὸν σ
κατὰ τὴν διά
καὶ οἱ παχεῖ
σωρειτικῆς
χρωμίτου κα
ἐνδείξεις ὅτι
θολεϊτικὸν μ
πίν. 22 δίδο

συστάσεω
ὀφιολιθικ
πυροξένου
δεικνύουν
προέρχον
διαφοροπ
τὸ θολεϊιτ
κτικότης
κὸν μάγμα
ἔρχονται
ὅτι τὸ μητ
ἐκ τοῦ μαν
σιν, ὅταν
βολὴ ὀλιβ
σωρειτικῆ
θολεϊιτική
(bulk) τῶν

Εἰς
ὀφιολίθων
τὰ πετρώμ
ὀφιολίθων
TiO_2, κατ

᾿Αδι
σαν ὁμοῦ
πλαγιόκλα
τὴν μεσοα
ὠκεάνιον
συστάσεω

῾Η ὀ
ἀρχήν, ὅτ
διὰ τὰ προ
φλεβῶν κα
στενὴν σύ
ἀπὸ τὴν
ἐνδεικτικὸ
ἀντιστοιχί
τὸν R. G.

καὶ ἔκχυτα π
εἶναι καὶ ἡ σ
ἐντὸς τῶν ὀ
(τεκτονῖται),
Sr^{87}:Sr^{86} (0,7
ὁμοιομορφία
φώσεις συνε
φορετικῆς κ
φλεβικὰ καὶ ἔ
τῶν συγχρόν
σημαίνει ὅτι
τοῦ μανδύου
ἄλλων ἀσυμβ
σχέσει μὲ τὸ
τῶν μαγμάτω

'Εκ τῆς
στοιχείων τῶ
(τεκτονίτας),
διαφοροποιή
συστήματος τ
πλαγιογρανιτ
διαπιστοῦται
μεγέθους. 'Αξ
σπανίων γαιῶ
λαβῶν τῶν ὀφ
Atlantic Ridge
κατανομῆς τ
διαβασικῶν φ
εἰς μικρὰς ὠκ
δυνατή.

Τὴν κατ
ἐκεῖνα τοῦ ὑ
ὑπολογίσουν θ
κλάστων, αὐγ
παραγένεσιν ὀ
κλασματικὴν
ἀποτελέσματα

τὰ ἔκχυ
τὴν παρ
πετρωμά
καὶ Β εἰ
Ἡ
σύμπλεγ
τῆς κατ
σωρείτα
A_{40}) τοὺ
A_{71}, A_{72}
μεταξὺ τ
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ὀφείλετα
πετρωμά
τὸ μέγεθ

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τοῦ συμ
ξένου) π
σχηματι
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3. Φλεβικὰ κ

α) *Βονι*

Ἡ παρ
παρουσίαν ἐκ
σιν τοῦ μητρ
πετρωμάτων
πετρωμάτων
λειτουργίαν τ
μὲ σύστασιν
τὰς περιπτώσ
δοσίας ἀπ' ευ
ποκρίνεται εἰ
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Ὡρισμ
τῶν πετρωμά
σύστασιν τοῦ
χουν βονινίτα
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βικοὶ πυρόξεν
νήσων Bonin
τοὺς μέχρι το

α)

β)

γ)

δ)

ε)

Τὰ σωρε
νίτας, διαφέρο
τοὺς σημερινο
γ),

στ

Οἱ
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καὶ σπιν
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Εἰ
H_2O, ὡς
βονινίτα
ὑελώδου
πρωτογε

Οἱ
Marianas
τα ἡφαι
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εἰς τοὺς
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μεγάλην
liquidus
τρόπος
εἶναι ἡ
συγκλινο

Εἰς
πετρώμα

με ἀσυνήθο
φέρεται τέλ
χὰς ἡφαιστ
Εἰρηνικοῦ

β) *Με*

Ἐντα
νονται τῶν
συστάσεως,
ὀλιβίνου με
τας καὶ τοὺ
πρέπει νὰ
βασικώτερα
νων θεωρητ
ψύξεως (qu
διεισδύουν
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νὲς (φωτογρ
συντηκτικῆ

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ὑποδηλοῖ τα
ταχεῖαν ἄνο

Ἡ ὀρ
(ἀναλύσεις
Πανεπιστήμ
ὅτι οἱ μελαβ
(Κατάρα) κα
εἶναι κοματι
μεναι ὡς πικ
σικαὶ λάβαι
ἀφαιρεθῇ 55

γ) *K*

Τὰ

1) Ε

ἄνευ H_2O

ἐμφανίζον

(spinifex)

2) Ε

λογισμὸν

πυρόξενον

Οὗτοι ἐμ

ὁποίων ἡ

σπινοειδὴ

komati τῆ

Ἀξ

εἰς σχημ

ὡρισμένοι

κοματιῖτα

ἐνῶ εἰς τ

ἐμφανίζον

Ἡ

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θολεϊΐτας.

Ἀρχαϊκο

(πηγή), ἐν

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στοιχεῖα κ

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Κατ' αὐτὸ

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οὕτω νὰ θ

στοιχείων

κλασματικ

Τὸ μ

μεγαλυτέρ

ὡρισμένοι ἐδ

κῆς Ἑνώσεω

Οἱ ἀπ

Al_2O_3:TiO_2 (

καὶ V. Οἱ μὴ

παραπλησία

ματα) καμπύ

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ὀρυκτῶν μὲ ὑ

συμμετοχὴ μ

ἀπὸ χημικὴν

ἐκ τῆς κρυσ

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ρος ὑπολογι

εἰς TiO_2 (βλ.

ὁποίων ἡ μ

ὑλικόν. Τὸ β

(R. W. Nesbi

δ) *Σχέσ*

Ἐλέχθ

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κοματιῖται ἐκ

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(discriminant)

φαίνεται ὅτι

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Κοματιῖ

Μελ

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Ἡ φύσι

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2) Ἀπ

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4) Ἀπ
τήξε

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Εἰς τὴν
προηγήθη τοῦ
νὰ ἐκπροσωπ

1) Ἀπ

2) Ἀπ

Εἰς τὴν
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1) Μελ
τῶν τεκτονιτῶ
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2) Μελ

Ἀναφορ
δὲν εἶναι σαφ
ὥστε νὰ μεθίστ
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ὡς ἀναφέρει ὁ
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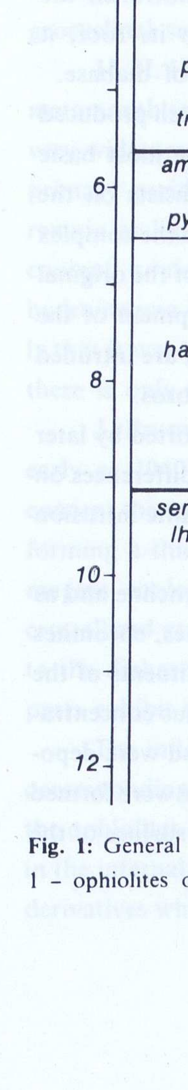

Fig. 1: General
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Fig. 2: Schema
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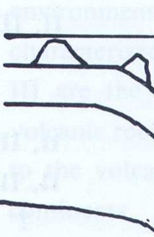

Fig. 3: Developn
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References: 1 -
4 - D.A. Woo
7 - S.D. Weave

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Fig. 4: Lith

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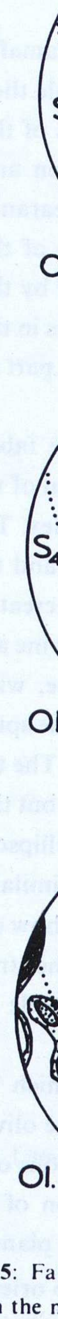

Fig. 5: Fa
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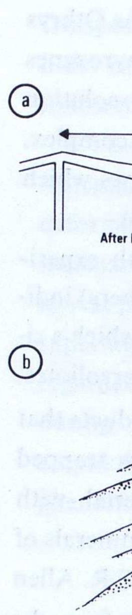

Fig. 6: Space
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Al_2O_3
Cr_2O_3
Fe_2O_3
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K_2O
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P_2O_5
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Cr_2O_3
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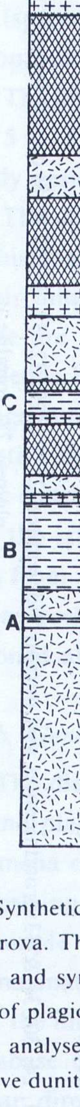

Fig. 7. Synthetic
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Table 8

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MgO
CaO
Na_2O
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* Fe: total

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Table 10

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84	52.94	15.20	5
85	48.98	12.35	6
86	52.01	14.77	4
87	46.52	16.10	7
88	58.12	13.95	5
89	53.00	15.17	5
90	42.01	14.41	8
92	55.61	15.38	7
93	54.85	13.84	9
95	51.91	15.48	11
96	60.23	12.32	7
97	63.32	15.68	7
105	43.40	8.71	5
106	47.91	12.98	5
107	48.89	15.08	4
108	50.30	14.16	4.
111	47.22	15.18	2.
112	51.71	14.70	1.
113	53.46	14.80	4.
115	49.71	13.70	4.
117	55.37	14.95	5.
118	50.34	15.84	6.
119	57.28	13.07	8.
120	46.17	16.50	10.
121	50.67	15.61	8.
122	60.57	14.47	6.
123	65.44	12.97	7.
125	66.18	12.78	1.
127	65.22	12.71	2.

tr= traces

82, 86, 87, 90 & 97: andesitic
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96: chloritized quartz andesi
basalt; 108: chilled edge of
andesite dyke; 118 & 120: a

Note: Sample 115 includes 0.

Table 13

Chemical analyses of the upper pillow lavas of the Troodos pillow lava series.
(After Th. Pantazis, 1973a, 1980c).

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K_2O
TiO_2
P_2O_3
Cr_2O_3
NiO
P. F
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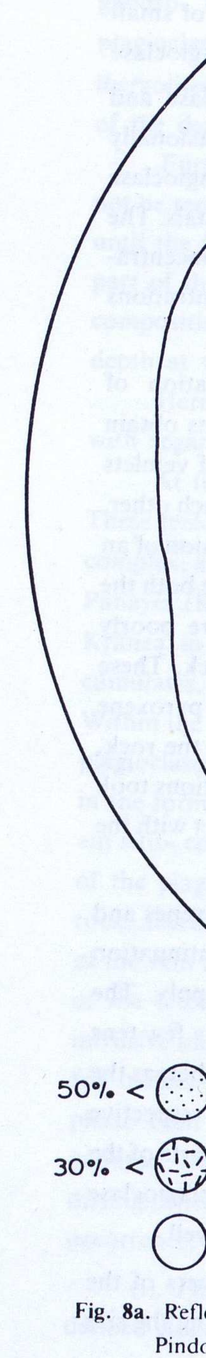

Fig. 8a. Refl
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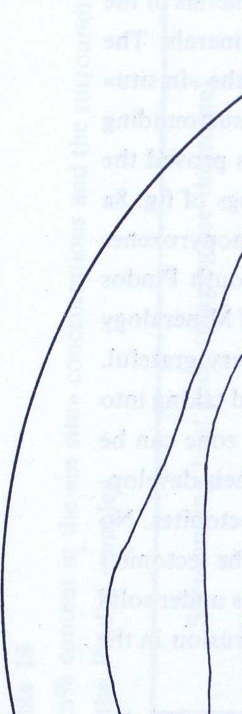

Fig. 8b. Reflecti
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Table 16

Microprobe assays of the plagioglases and their Ab% and An% content in the «in situ» concentrations and the surrounding host rocks from the Pindos complex.

Concentrations «in situ»	Surrounding host rock (plagioglase lherzolite)

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SiO_2	52.1
Al_2O_3	3.0
FeO*	2.8
MgO	18.4
CaO	23.9
TiO_2	0.1
Na_2O	0.2
Cr_2O_3	0.5
Total	101.3

* Fe total as Fe

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Fe_2O
FeO
MnO
MgO
CaO
Na_2O
K_2O
TiO_2
P_2O_5
Cr_2O
NiO
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H_2O+
H_2O-
Total
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FeO*:
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Table 20

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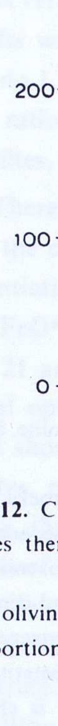

Fig. 12. C
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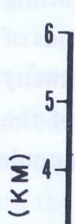

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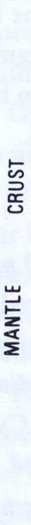

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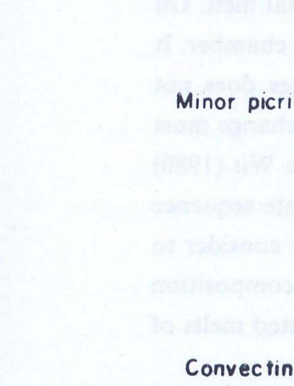

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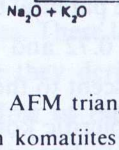

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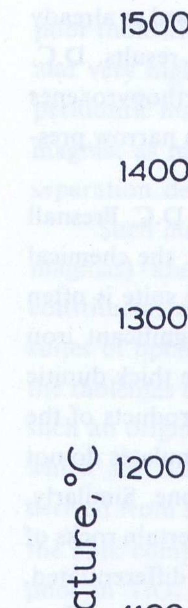

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K_2O
P_2O_5
Mg:(Mg+Fe
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FeO + Fe2O3 + TiO2

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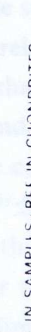

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Na_2O	
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P_2O_5	
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SiO_2	45
Al_2O_3	4
FeO*	9
MnO	0
MgO	35
CaO	4
Na_2O	0
K_2O	0
TiO_2	0
P_2O_5	
Cr_2O_3	0
MgO:(MgO+FeO*)	0
FeO*:MgO	0
FeO*:(FeO*+MgO)	0
$CaO:Al_2O_3$	0
$Al_2O_3:TiO_2$	25
$TiO_2:P_2O_5$	

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3 Mean of 6 analyses

Table 24 (continue

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FeO*
MnO
MgO
CaO
Na_2O
K_2O
TiO_2
P_2O_5
Cr_2O_5
MgO:(MgO+FeO*)
FeO*:MgO
FeO*:(FeO*+MgO)
$CaO:Al_2O_3$
$Al_2O_3:TiO_2$
$TiO_2:P_2O_5$

Table 24 (continued)

Group	
Location	
References	
Rock type	
Form	
Cited sample No	
No	
SiO_2	5
Al_2O_3	
FeO*	
MnO	
MgO	2
CaO	
Na_2O	
K_2O	
TiO_2	
P_2O_5	
Cr_2O_3	
MgO:(MgO+FeO*)	
FeO*:MgO	
FeO*:(FeO*+MgO)	
$CaO:Al_2O_3$	
$Al_2O_3:TiO_2$	4
$TiO_2:P_2O_5$	

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Na_2O
K_2O
TiO_2
P_2O_5
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Nb
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Ba
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Ni
Cr
V
MgO: (MgO+FeO*)
FeO*: MgO
FeO*: (FeO*+MgO)

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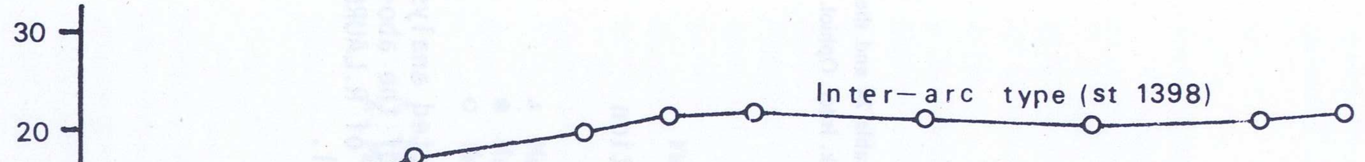

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