

## CONTENTS OF VOLUME 12

### Number 1

- 1 Editorial
- J. M. DIXON and R. TIRRUL 3 Centrifuge modelling of fold–thrust structures in a tripartite stratigraphic succession
- M. A. EVANS and W. M. DUNNE 21 Strain factorization and partitioning in the North Mountain thrust sheet, central Appalachians, U.S.A.
- A. YIN and T. K. KELTY 37 Development of normal faults during emplacement of a thrust sheet: an example from the Lewis allochthon, Glacier National Park, Montana (U.S.A.)
- S. WOJTAL and J. PERSHING 49 Paleostresses associated with faults of large offset
- J. HADIZADEH, H. A. BABAIE and A. BABAIE 63 Development of interlaced mylonites, cataclasites and breccias: example from the Towaliga fault, south central Appalachians
- H. STÜNITZ 71 Folding and shear deformation in quartzites, inferred from crystallographic preferred orientation and shape fabrics
- R. C. FLETCHER 87 Three-dimensional folding of an embedded viscous layer in pure shear
- Brevia*
- R. KRETZ 97 The dilation direction of intrusive sheets
- C. W. PASSCHIER 101 The classification of dilatant flow types
- D. KIRSCHNER and C. TEYSSIER 105 Quartz *c*-axis fabric differences between porphyroclasts and recrystallized grains
- J.-P. GRATIER, B. GUILLIER, A. DELORME and F. ODONNE 111 Restoration and balance of a folded and faulted surface by best-fitting of finite elements: principle and applications
- B. MARSHALL 117 Deformation and recrystallization microstructures in deformed ores from the CSA mine, N.S.W., Australia: Discussion
- B. A. BRILL 119 Deformation and recrystallization microstructures in deformed ores from the CSA mine, N.S.W., Australia: Reply
- 121 Book Reviews

### Number 2

#### Special Issue: Characteristics of Active Faults

##### v Preface

- C. M. DEPOLO, D. G. CLARK,  
D. B. SLEMMONS and A. R. RAMELLI 123 Historical surface faulting in the Basin and Range province, western North America: implications for fault segmentation

- M. N. MACHETTE, S. F. PERSONIUS,  
A. R. NELSON, D. P. SCHWARTZ  
and W. R. LUND
- A. J. CRONE and K. M. HALLER
- P. ZHANG, D. B. SLEMMONS and F. MAO
- K. BERRYMAN and S. BEANLAND
- I. S. STEWART and P. L. HANCOCK
- S. B. PAVLIDES and M. D. TRANOS
- R. S. YEATS and R. J. LILLIE
- H. TSUTSUMI, A. OKADA, T. NAKATA,  
M. ANDO and T. TSUKUDA
- T. MOGI, I. KATSURA and S. NISHIMURA
- 137 The Wasatch fault zone, Utah—segmentation and history of Holocene earthquakes
- 151 Segmentation and the coseismic behavior of Basin and Range normal faults: examples from east-central Idaho and southwestern Montana, U.S.A.
- 165 Geometric pattern, rupture termination and fault segmentation of the Dixie Valley–Pleasant Valley active normal fault system, Nevada, U.S.A.
- 177 Variation in fault behaviour in different tectonic provinces of New Zealand
- 191 Scales of structural heterogeneity within neotectonic normal fault zones in the Aegean region
- 205 Structural characteristics of two strong earthquakes in the North Aegean: Ierissos (1932) and Agios Efstratios (1968)
- 215 Contemporary tectonics of the Himalayan frontal fault system: folds, blind thrusts and the 1905 Kangra earthquake
- 227 Timing and displacement of Holocene faulting on the Median Tectonic Line in central Shikoku, southwest Japan
- 235 Magnetotelluric survey of an active fault system in the northern part of Kinki District, southwest Japan

### Number 3

- 241 Editorial
- K. G. STEWART and W. ALVAREZ
- T. E. JOHNSON
- K. F. MULCHRONE
- J. W. MIES
- B. GOSCOMBE
- I. A. ABBASI and R. McELROY
- J. I. SOTO
- A. FERNANDEZ and D. LAPORTE
- 243 Mobile-hinge kinking in layered rocks and models
- 261 Nomenclature and geometric classification of cleavage-transected folds
- 275 The interpretation of fold axial data from regions of polyphase folding
- 281 Planar dispersion of folds in ductile shear zones and kinematic interpretation of fold-hinge girdles
- 299 Intense non-coaxial shear and the development of mega-scale sheath folds in the Arunta Block, Central Australia
- 319 Thrust kinematics in the Kohat Plateau, Trans Indus Range, Pakistan
- 329 Strain analysis method using the maximum frequency of unimodal deformed orientation distributions: applications to gneissic rocks
- 337 Significance of low symmetry fabrics in magmatic rocks

- N. MANDAL and D. KHAN 349 Rotation, offset and separation of oblique-fracture (rhombic) boudins: theory and experiments under layer-normal compression
- Brevia*
- K. H. FLEISCHMANN 357 Interaction between jointing and topography: a case study at Mt Ascutney, Vermont, U.S.A.
- E. H. RUTTER and K. H. BRODIE 363 Lithosphere rheology—a note of caution
- I International Newsletter 1: Spring 1991
- Number 4**
- L. RATSCHBACHER, H.-R. WENK and M. SINTUBIN 369 Calcite textures: examples from nappes with strain-path partitioning
- P. LABAUME, C. BERTY and PH. LAURENT 385 Syn-diagenetic evolution of shear structures in superficial nappes: an example from the Northern Apennines (NW Italy)
- P. G. JORDAN 399 Development of asymmetric shale pull-aparts in evaporite shear zones
- S. K. RAY 411 Significance of forelimb folds in the Shumar allochthon, Lesser Himalaya, eastern Bhutan
- J.-P. BRUN, J.-F. BALLARD and C. LE CORRE 419 Identification of Ordovician block-tilting in the Hercynian fold belt of Central Brittany (France): field evidence and computer models
- F. HROUDA and Š. KAHAN 431 The magnetic fabric relationship between sedimentary and basement nappes in the High Tatra Mountains, N. Slovakia
- T. FORSLUND and A. GUDMUNDSSON 443 Crustal spreading due to dikes and faults in southwest Iceland
- P. RICHARD 459 Experiments on faulting in a two-layer cover sequence overlying a reactivated basement fault with oblique-slip
- P. R. BLUMENFELD and C. J. L. WILSON 471 Boundary migration and kinking in sheared naphthalene
- 485 Book Reviews
- Number 5**
- T. R. CHARLTON, A. J. BARBER and S. T. BARKHAM 489 The structural evolution of the Timor collision complex, eastern Indonesia
- N. CULSHAW 501 Post-collisional oblique convergence along the Thelon Tectonic Zone, north of the Bathurst Fault, NWT, Canada
- R. J. VARGA 517 Modes of extension at oceanic spreading centers: evidence from the Solea graben, Troodos ophiolite, Cyprus
- C. K. MAWER and P. F. WILLIAMS 539 Progressive folding and foliation development in a sheared, coticule-bearing phyllite

S. MOSHER and A. W. BERRYHILL	557	Structural analysis of progressive deformation within complex transcurrent shear zone systems: southern Narragansett Basin, Rhode Island
H. A. BABAIE, J. HADIZADEH, A. BABAIE and A. M. GHAZI	579	Timing and temperature of cataclastic deformation along segments of the Towaliga fault zone, western Georgia, U.S.A.
A. F. GLAZNER and J. M. BARTLEY	587	Volume loss, fluid flow and state of strain in extensional mylonites from the central Mojave Desert, California
J. E. OLSON and D. D. POLLARD	595	The initiation and growth of en échelon veins
<i>Brevia</i>		
E. H. RUTTER and J. HADIZADEH	609	On the influence of porosity on the low-temperature brittle-ductile transition in siliciclastic rocks
	615	Erratum

#### Number 6

J.-P. BURG	617	Syn-migmatization way-up criteria
H. STEL	625	Linear dilatation structures and syn-magmatic folding in granitoids
R. NICHOLSON	635	Vein morphology, host rock deformation and the origin of the fabrics of echelon mineral veins
I. S. BUICK	643	Mylonite fabric development on Naxos, Greece
J. M. GARBUTT and C. TEYSSIER	657	Prism $\langle c \rangle$ slip in the quartzites of the Oakhurst Mylonite Belt, California
D. A. FERRILL	667	Calcite twin widths and intensities as metamorphic indicators in natural low-temperature deformation of limestone
T. O. WRIGHT and R. D. DALLMEYER	677	The age of cleavage development in the Ross orogen, northern Victoria Land, Antarctica: evidence from $^{40}\text{Ar}/^{39}\text{Ar}$ whole-rock slate ages
D. R. GRAY and C. E. WILLMAN	691	Thrust-related strain gradients and thrusting mechanisms in a chevron-folded sequence, southeastern Australia
H. SCHANDELMEIER and A. RICHTER	711	Brittle shear deformation in Northern Kordofan, Sudan: late Carboniferous to Triassic reactivation of Precambrian fault systems
D. C. P. PEACOCK and D. J. SANDERSON	721	Displacements, segment linkage and relay ramps in normal fault zones
<i>Brevia</i>		
R. MARRETT and R. W. ALLMENDINGER	735	Estimates of strain due to brittle faulting: sampling of fault populations
	739	Book Reviews

**Number 7**

- P. R. COBBOLD, D. GAPAIS and E. A. ROSSELLO 743 Partitioning of transpressive motions within a sigmoidal foldbelt: the Variscan Sierras Australes, Argentina
- D. G. A. M. AERDEN 759 Foliation-boudinage control on the formation of the Rosebery Pb-Zn orebody, Tasmania
- Y. KANAORI, S. KAWAKAMI and K. YAIRI 777 Microstructure of deformed biotite defining foliation in cataclastic zones in granite, central Japan
- A. VOLLBRECHT, S. RUST and K. WEBER 787 Development of microcracks in granites during cooling and uplift: examples from the Variscan basement in NE Bavaria, Germany
- M. S. WILKERSON, D. A. MEDWEDEFF and S. MARSHAK 801 Geometrical modeling of fault-related folds: a pseudo-three-dimensional approach
- T. M. WILL and R. POWELL 813 A robust approach to the calculation of paleostress fields from fault plane data
- J. L. URAI, P. F. WILLIAMS, and H. L. M. VAN ROERMUND 823 Kinematics of crystal growth in syntectonic fibrous veins
- S. RALSER, B. E. HOBBS and A. ORD 837 Experimental deformation of a quartz mylonite
- CH. JANSSEN, E. BANKWITZ, P. BANKWITZ and G. HARNISCH 851 Application of digital image analysis in modelling recrystallization processes
- N. S. MANCKTELOW 859 The analysis of progressive deformation from an inscribed grid

**Number 8**

- K. M. CRUIKSHANK, G. ZHAO and A. M. JOHNSON 865 Analysis of minor fractures associated with joints and faulted joints
- G. ZHAO and A. M. JOHNSON 887 Sequential and incremental formation of conjugate sets of faults
- D. E. HELGESON and A. AYDIN 897 Characteristics of joint propagation across layer interfaces in sedimentary rocks
- G. TOURIGNY and W. M. SCHWERDTNER 913 Metre-scale band structures and associated veins in Archean metavolcanics: Aubelle gold mine, central Canada
- T. E. JOHNSON and N. H. WOODCOCK 919 Detecting cleavage-transected folds using cleavage-bedding intersections
- K. KANAGAWA 927 Change in dominant mechanisms for phyllosilicate preferred orientation during cleavage development in the Kitakami slates of NE Japan
- G. E. LLOYD and B. FREEMAN 945 SEM electron channelling analysis of dynamic recrystallization in a quartz grain
- G. BRAUN, S. SIEGSMUND and M. DAHMS 955 The influence of quartz textures on the seismic anisotropy in lower crustal granulites

*Brevia*

- T. SHIMAMOTO, Y. KANAORI and K. ASAI 967 Cathodoluminescence observations on low-temperature mylonites: potential for detection of solution-precipitation microstructures
- 975 Book Reviews
- I International Newsletter 2: Autumn 1991
- Number 9**
- R. H. VERNON 977 Editorial
- J. TULLIS and R. A. YUND 979 Questions about myrmekite in deformed rocks
- J.-H. REE 987 Diffusion creep in feldspar aggregates: experimental evidence
- A. TREMBLAY and M. MALO 1001 An experimental steady-state foliation
- D. C. P. PEACOCK 1013 Significance of brittle and plastic fabrics within the Massawippi Lake fault zone, southern Canadian Appalachians
- W. NARR and J. SUPPE 1025 Displacements and segment linkage in strike-slip fault zones
- M. G. ROWAN 1037 Joint spacing in sedimentary rocks
- R. WEIJERMARS 1049 Three-dimensional finite strain from crinoid ossicles
- Brevia* 1061 The role of stress in ductile deformation
- R. W. ALLMENDINGER, H. A. K. CHARLESWORTH, E. A. ERSLEV, P. GUTH, C. W. LANGENBERG, A. PECHER and J. S. WHALLEY 1079 Microcomputer software for structural geologists
- R. I. SIKORSKY 1085 A diagram for interpreting orientation data for planar features in core
- Number 10**
- H.-R. WENK and J. M. CHRISTIE 1091 Review Paper—Comments on the interpretation of deformation textures in rocks
- F. FUETEN, P.-Y. F. ROBIN and R. STEPHENS 1111 A model for the development of a domainal quartz *c*-axis fabric in a coarse-grained gneiss
- B. A. VAN DER PLUIJM 1125 Marble mylonites in the Bancroft shear zone, Ontario, Canada: microstructures and deformation mechanisms
- O. T. TOBISCH, M. D. BARTON, R. H. VERNON and S. R. PATERSON 1137 Fluid-enhanced deformation: transformation of granitoids to banded mylonites, western Sierra Nevada, California, and southeastern Australia
- W. J. COLLINS, R. H. VERNON and G. L. CLARKE 1157 Discrete Proterozoic structural terranes associated with low-*P*, high-*T* metamorphism, Anmatjira Range, Arunta Inlier, central Australia: tectonic implications

J. L. FOREMAN and W. M. DUNNE	1173	Conditions of vein formation in the southern Appalachian foreland: constraints from vein geometries and fluid inclusions
K. M. CRUIKSHANK, G. ZHAO and A. M. JOHNSON	1185	Duplex structures connecting fault segments in Entrada Sandstone
	1197	Book Reviews
	1201	Referees for Volume 13
	i	Contents and Author Index, Volume 13

## AUTHOR INDEX

ABBASI, I. A.	319	GAPAIS, D.	743
AERDEN, D. G. A. M.	759	GARBUTT, J. M.	657
ALLMENDINGER, R. W.	735, 1079	GHAZI, A. M.	579
ALVAREZ, W.	243	GLAZNER, A. F.	587
ANDO, M.	227	GOSCOMBE, B.	299
ASAI, K.	967	GRATIER, J.-P.	111
AYDIN, A.	897	GRAY, D. R.	691
		GUDMUNDSSON, A.	443
BABAEI, A.	63, 579	GUILLIER, B.	111
BABAIE, H. A.	63, 579	GUTH, P.	1079
BALLARD, J.-F.	419		
BANKWITZ, E.	851	HADIZADEH, J.	63, 579, 609
BANKWITZ, P.	851	HALLER, K. M.	151
BARBER, A. J.	489	HANCOCK, P. L.	191
BARKHAM, S. T.	489	HARNISCH, G.	851
BARTLEY, J. M.	587	HELGESON, D. E.	897
BARTON, M. D.	1137	HOBBS, B. E.	837
BEANLAND, S.	177	HROUDA, F.	431
BERRYHILL, A. W.	557		
BERRYMAN, K.	177	JANSSEN, CH.	851
BERTY, C.	385	JOHNSON, A. M.	865, 887, 1185
BLUMENFELD, P. R.	471	JOHNSON, T. E.	261, 919
BRAUN, G.	955	JORDAN, P. G.	399
BRILL, B. A.	119		
BRODIE, K. H.	363	KAHAN, Š.	431
BRUN, J.-P.	419	KANAGAWA, K.	927
BUICK, I. S.	643	KANAORI, Y.	777, 967
BURG, J.-P.	617	KATSURA, I.	235
		KAWAKAMI, S.	777
CHARLESWORTH, H. A. K.	1079	KELTY, T. K.	37
CHARLTON, T. R.	489	KHAN, D.	349
CHRISTIE, J. M.	1091	KIRSCHNER, D.	105
CLARK, D. G.	123	KRETZ, R.	97
CLARKE, G. L.	1157		
COBBOLD, P. R.	743	LABAUME, P.	385
COLLINS, W. J.	1157	LANGENBERG, C. W.	1079
CRONE, A. J.	151	LAPORTE, D.	337
CRUIKSHANK, K. M.	865, 1185	LAURENT, PH.	385
CULSHAW, N.	501	LE CORRE, C.	419
		LILLIE, R. J.	215
DAHMS, M.	955	LLOYD, G. E.	945
DALLMEYER, R. D.	677	LUND, W. R.	137
DELORME, A.	111		
DEPOLO, C. M.	123	MACHETTE, M. N.	137
DIXON, J. M.	1	MALO, M.	1013
DUNNE, W. M.	21, 1173	MANCKTELOW, N. S.	859
		MANDAL, N.	349
ERSLEV, E. A.	1079	MAO, F.	165
EVANS, M. A.	21	MARRETT, R.	735
		MARSHAK, S.	801
FERNANDEZ, A.	337	MARSHALL, B.	117
FERRILL, D. A.	667	MAWER, C. K.	539
FLEISCHMANN, K. H.	357	McELROY, R.	319
FLETCHER, R. C.	87	MEDWEDEFF, D. A.	801
FOREMAN, J. L.	1173	MIES, J. W.	281
FORSLUND, T.	443	MOGI, T.	235
FREEMAN, B.	945	MOSHER, S.	557
FUETEN, F.	1111	MULCHRONE, K. F.	275



NAKATA, T.	227	SLEMMONS, D. B.	123, 165
NARR, W.	1037	SOTO, J. I.	329
NELSON, A. R.	137	STEL, H.	625
NICHOLSON, R.	635	STEPHENS, R.	1111
NISHIMURA, S.	235	STEWART, I. S.	191
		STEWART, K. G.	243
ODONNE, F.	111	STÜNITZ, H.	71
OKADA, A.	227	SUPPE, J.	1037
OLSON, J. E.	595		
ORD, A.	837	TEYSSIER, C.	105, 657
		TIRRUL, R.	1
PASSCHIER, C. W.	101	TOBISCH, O. T.	1137
PATERSON, S. R.	1137	TOURIGNY, G.	913
PAVLIDES, S. B.	205	TRANOS, M. D.	205
PEACOCK, D. C. P.	721, 1025	TREMBLAY, A.	1013
PECHER, A.	1079	TSUKUDA, T.	227
PERSHING, J.	49	TSUTSUMI, H.	227
PERSONIUS, S. F.	137	TULLIS, J.	987
PLUIJM, B. A. VAN DER	1125		
POLLARD, D. D.	595	URAI, J. L.	823
POWELL, R.	813		
		VARGA, R. J.	517
RALSER, S.	837	VERNON, R. H.	979, 1137, 1157
RAMELLI, A. R.	123	VOLLBRECHT, A.	787
RATSCHBACHER, L.	369		
RAY, S. K.	411	WEBER, K.	787
REE, J.-H.	1001	WEIJERMARS, R.	1061
RICHARD, P.	459	WENK, H.-R.	369, 1091
RICHTER, A.	711	WHALLEY, J. S.	1079
ROBIN, P.-Y. F.	1111	WILKERSON, M. S.	801
ROERMUND, H. L. M. VAN	823	WILL, T. M.	813
ROSSELLO, E. A.	743	WILLIAMS, P. F.	539, 823
ROWAN, M. G.	1049	WILLMAN, C. E.	691
RUST, S.	787	WILSON, C. J. L.	471
RUTTER, E. H.	363, 609	WOJTAL, S.	49
		WOODCOCK, N. H.	919
		WRIGHT, T. O.	677
SANDERSON, D. J.	721		
SCHANDELMEIER, H.	711	YAIRI, K.	777
SCHWARTZ, D. P.	137	YEATS, R. S.	215
SCHWERDTNER, W. M.	913	YIN, A.	37
SHIMAMOTO, T.	967	YUND, R. A.	987
SIEGESMUND, S.	955		
SIKORSKY, R. I.	1085	ZHANG, P.	165
SINTUBIN, M.	369	ZHAO, G.	865, 887, 1185