

# Journal of Testing and Evaluation

## Index to Volume 1

### 1973

Number	Month of Issue	Pages
1	January	1-80
2	March	81-180
3	May	181-262
4	July	263-360
5	September	361-448
6	November	449-548

#### A

##### Acoustics

- determination of resonant vibration frequency of concrete by an acoustic impact technique (Wang, Auskern, and Horn), July, 291
- evaluation of composite failures through fracture signal analysis (Mullin and Mehan), May, 215
- ultrasonic measurement of elastic moduli in slender specimens using extensional torsional wave pulses (Lynnworth), March, 119
- Adhesion tests, quantitative adhesion tests of vacuum deposited thin films (Berendsohn), March, 139
- Aircraft structures, structural integrity in aircraft (Hardrath), Jan., 3
- Alexander, J. G.: *see* Castle, G. K., Alexander, J. G., Tempesta, F. L., and Belason, E. B.
- Alpan, I.: *see* Frydman, S., Zeitlen, J. G., and Alpan, I.

##### Aluminum alloys

- effect of the intermediate principal stress on triaxial fatigue of 7075-T6 aluminum alloy (Findley and Tracy), Sept., 432
- effect of very short time-at-temperature on the yield stress of 6061-T651 aluminum (Babcock, Norve, Green, and Holt), July, 353
- Analog, analog control system for an inverted torsion pendulum (Willertz and Pradhan), Sept., 405

- Anderson, J. A.: *see* Lamb, J. H. and Anderson, J. A.

- Annealing, annealability testing of copper (Joint B-1 and B-2 Task Group), Jan., 42

- Ashe, H. B.: *see* O'Neill, Isabel, Levadie, Benjamin, and Ashe, H. B.

- Asphalts, microscopic approach to the microstructure of paving asphalts (Sontowski), March, 149

- Atomic spectroscopy, atomic absorption analysis of portland cement and raw mix using a lithium metaborate fusion (Crow and Connolly), Sept., 382

##### Auger electrons

- auger electron spectroscopy in the scan-

- ning electron microscope (Waldrop and Marcus), May, 194
- impurity segregation to grain boundaries (Joshi and Stein), May, 202
- technological application of auger electron spectroscopy (Gjostein and Chavka), May, 183
- Auskern, Allan
- and Horn, William: Capillary porosity in hardened cement paste, Jan., 74
- see* Wang, J. C. K., Auskern, Allan, and Horn, William

#### B

- Babcock, S. G., Norve, D. B., Green, S. J., and Holt, D. L.: Effect of very short time-at-temperature on the yield stress of 6061-T651 aluminum, July, 353
- Bankvall, Claes: Heat transfer in fibrous materials, May, 235
- Barraclough, D. R., Whittaker, H. J., Nair, K. D., and Sellars, C. M.: Effect of specimen geometry on hot torsion test results for solid and tubular specimens, May, 220

##### Belason, E. B.

- see* Castle, G. K., Alexander, J. G., Tempesta, F. L., and Belason, E. B.
- see* Crowley, D. P., Tempesta, F. L., Castle, G. K., Belason, E. B., and D'Avanzo, L. J.

- Bend tests, determination of mechanical design properties of materials (Weissmann), March, 133

- Bending, room temperature creep behavior of superplastic Zn-22Al under bending and plane stress conditions (Mulgavia), Jan., 65

- Bennett, J. A. and Mindlin, Harold: Metallurgical aspects of the failure of the Point Pleasant Bridge, March, 152
- Berendsohn, O.: Quantitative adhesion tests of vacuum deposited thin films, March, 139

##### Beryllium

- ASTM standardization activities in the fracture testing of beryllium (Brown), March, 87
- crack toughness evaluation of hot pressed and forged beryllium (Jones, Bubsey, and Brown), March, 100
- fracture toughness of beryllium (Conrad Hurd, and Woodard), March, 88
- S-200 grade beryllium fracture toughness properties (Shabbits and Logsdon), March, 110

- Biaxial stresses, room temperature creep behavior of superplastic Zn-22Al under bending and plane stress conditions (Mulgavia), Jan., 65

- Bitumens, study of currently used methods

- for determining the permeability of bituminous mixtures (Gilbert and Keyser), Nov., 484

- Brady, R. L.: *see* Hoge, K. G., Brady, R. L., and Cortez, R.

##### Brown, W. F., Jr.

- ASTM standardization activities in the fracture testing of beryllium, March, 87

- see* Jones, M. H., Bubsey, R. T., and Brown, W. F., Jr.

- Brumund, W. F. and Leonards, G. A.: Experimental study of static and dynamic friction between sand and typical construction materials, March, 162

- Bubsey, R. T.: *see* Jones, M. H., Bubsey, R. T., and Brown, W. F., Jr.

#### C

- Campbell-Allen, D.: *see* Kass, J. L. and Campbell-Allen, D.

- Capillarity, capillary porosity in hardened cement paste (Auskern and Horn), Jan., 74

- Carette, G. G.: *see* Zoldners, N. G. and Carette, G. G.

- Case, G. R.: Acquisition of computer aided design/analysis models for semiconductors, July, 295

##### Castle, G. K.

- Alexander, J. G., Tempesta, F. L., and Belason, E. B.: Analytical prediction of the thermal response of decomposing materials in fire environments, Sept., 416
- see* Crowley, D. P., Tempesta, F. L., Castle, G. K., Belason, E. B., and D'Avanzo, L. J.

- Cements, some factors affecting cement mortar strength results using ASTM standard test methods C 348 and C 349 (Zoldners and Carette), Jan., 31

- Cements (adhesives), capillary porosity in hardened cement paste (Auskern and Horn), Jan., 74

- Chait, R.: Flow and fracture of high strength steels in torsion, Sept., 435

- Chapman, J. R.: *see* Noronha, P. J., Chapman, J. R., and Wert, J. J.

- Chavka, N. G.: *see* Gjostein, N. A. and Chavka, N. G.

- Chemical analysis, atomic absorption analysis of portland cement and raw mix using a lithium metaborate fusion (Crow and Connolly), Sept., 382

- Clays, multistage triaxial testing of lightly overconsolidated clays (Parry and Nadarajah), Sept., 374

##### Coatings

- flow test for determination of set-time

- of powdered coatings (Worley and Zell), Sept., 369
- quantitative adhesion tests of vacuum deposited thin films (Berendsohn), March, 139
- Colloiding, microscopic approach to the microstructure of paving asphalts (Sontowski), March, 149
- Composite materials
- evaluation of composite failures through fracture signal analysis (Mullin and Mehan), May, 215
  - specimen geometry effects on the strength of unidirectional resin-matrix composites (Loveless), Nov., 532
  - test facilities for measuring the thermal response of materials to the fire environment (Crowley, Tempesta, Castle, Belason, and D'Avanzo), Sept., 363
  - thermomechanical testing of plastics for environmental resistance (McKague, Reynolds, and Halkias), Nov., 468
- Compression tests
- influence of specimen size and shape on compression perpendicular to the grain of green messmate (Walsh), May, 255
  - some factors affecting cement mortar strength results using ASTM standard test methods C 348 and C 349 (Zoldners and Carette), Jan., 31
  - tension-compression test fixture to determine Bauschinger effect (Hoge, Brady, and Cortez), July, 288
- Computer, acquisition of computer aided design/analysis models for semiconductors (Case), July, 295
- Concretes
- determination of resonant vibration frequency of concrete by an acoustic impact technique (Wang, Auserk, and Horn), July, 291
  - precision of early shrinkage measurements (Kass and Campbell-Allen), Jan., 24
  - triaxial testing of nonreinforced concrete specimens (Hilsdorf, Lorman, and Monfore), July, 330
- Connolly, J. D.: *see* Crow, R. F. and Connolly, J. D.
- Conrad, H., Hurd, J., and Woodard, D.: Fracture toughness of beryllium, March, 88
- Consolidation
- laboratory method of preparing isotropic samples of clay (Khera), Nov., 480
  - one-dimensional consolidation of retarded plastic concrete (Uzomaka), Nov., 503
- Cooling rate, development of cold weather paving specifications (Maupin), Nov., 510
- Copper, annealability testing of copper (Joint B-1 and B-2 Task Group), Jan., 42
- Copper-nickel-tin alloys, fatigue properties of a tin-modified copper nickel alloy (CA-725) (Fox), Sept., 445
- Cortez, R.: *see* Hoge, K. G., Brady, R. L., and Cortez, R.
- Crack propagation
- fatigue-crack growth in type 304 stainless steel weldments at elevated temperatures (James), Jan., 52
  - simple method for studying slow crack growth (Williams and Evans), July, 264
  - work of fracture and fracture toughness of graphite (Vitovec), May, 250
- Cracking (fracturing)
- influence of loading variables on environment-enhanced fatigue crack growth in high strength steels (Miller, Hudak, and Wei), Nov., 524
  - metallurgical aspects of the failure of the Point Pleasant Bridge (Bennett and Mindlin), March, 152
- Cracks, probabilistic updating of flaw information (Tang), Nov., 459
- Creep tests
- comparison of bending and tension tests in creep of sheet metal (Duncan and Ragab), Nov., 451
  - room temperature creep behavior of superplastic Zn-22Al under bending and plane stress conditions (Mulvanian), Jan., 65
- Crow, R. F. and Connolly, J. D.: Atomic absorption analysis of portland cement and raw mix using a lithium metaborate fusion, Sept., 382
- Crowley, D. P., Tempesta, F. L., Castle, G. K., Belason, E. B., and D'Avanzo, L. J.: Test facilities for measuring the thermal response of materials to the fire environment, Sept., 363
- Cyclic loads, fatigue life and inelastic strain response under complex histories for an alloy steel (Dowling), July, 271

## E

- Edenfeld, A. R.: *see* Rathore, H. S., Yih, R. C., and Edenfeld, A. R.
- Elastic limit, finite strain and the 0.01 percent offset yield strength (Wonsiewicz and Hart), Sept., 412
- Electron microscopy, fracture toughness of beryllium (Conrad, Hurd, and Woodard), March, 88
- Epitaxy
- epitaxial resistivity (Langer and Pearce), July, 305
  - materials for diffusion and epitaxy (Gittler), July, 310
  - silicon epitaxial thickness measurements: why and how (Gardner), July, 301
- Evans, A. G.: *see* Williams, D. P. and Evans, A. G.

## F

- Failure
- cyclic stress, strain, and energy variations under cumulative damage tests in low-cycle fatigue (Thang), Jan., 58
  - effect of the intermediate principal stress on triaxial fatigue of 7075-T6 aluminum alloy (Findley and Tracy), Sept., 432
  - evaluation of composite failures through fracture signal analysis (Mullin and Mehan), May, 215
- Fatigue, structural integrity in aircraft (Hardrath), Jan., 3
- Fatigue life
- fatigue life and inelastic strain response under complex histories for an alloy steel (Dowling), July, 271
  - some studies of the influence of localized and gross plasticity on the monotonic and cyclic concentration factors (Leis, Gowda, and Topper), July, 341
- Fatigue (materials)
- crack toughness evaluation of hot pressed and forged beryllium (Jones, Bubsey, and Brown), March, 100
  - fatigue behavior of solders used in flip-chip technology (Rathore, Yih, and Edenfeld), March, 170
  - fatigue failure predictions for plates with holes and edge notches (Raske), Sept., 394
  - fatigue properties of a tin-modified copper nickel alloy (CA-725) (Fox), Sept., 445

- Fatigue tests  
 cyclic stress, strain, and energy variations under cumulative damage tests in low-cycle fatigue (Thang), Jan., 58  
 fatigue-crack growth in type 304 stainless steel weldments at elevated temperatures (James), Jan., 52
- Fibers, heat transfer in fibrous materials (Bankvall), May, 235
- Findley, W. N. and Tracy, J. F.: Effect of the intermediate principal stress on triaxial fatigue of 7075-T6 aluminum alloy, Sept., 432
- Fire tests, test facilities for measuring the thermal response of materials to the fire environment (Crowley, Tempesta, Castle, Belason, and D'Avanzo), Sept., 363
- Flexural strength, specimen geometry effects on the strength of unidirectional resin-matrix composites (Loveless), Nov., 532
- Flow tests, flow test for determination of set-time of powdered coatings (Worley and Zell), Sept., 369
- Fluid filters, microchemical determination of quartz in granite dust sampled by size selective methods on membrane filters (O'Neill, Levadie, and Ashe), May, 231
- Fopiano, P. J.  
 and Hickey, C. F., Jr.: Comparison of the heat treatment responses of three commercial titanium alloys, Nov., 514  
*see* Hickey, C. F., Jr. and Fopiano, P. J.
- Forgings, contributions of selected residual elements to the radiation embrittlement sensitivity of steel forgings (Hawthorne), Sept., 439
- Formability, four aspects of sheet metal formability and their assessment (Lee and Hsu), May, 244
- Fox, A.: Fatigue properties of a tin-modified copper nickel alloy (CA-725), Sept., 445
- Fractography, S-200 grade beryllium fracture toughness properties (Shabbits and Logsdon), March, 110
- Fracture  
 structural integrity in aircraft (Hardrath), Jan., 3  
 work of fracture and fracture toughness of graphite (Vitovec), May, 250
- Fracture properties  
 flow and fracture of high strength steels in torsion (Chait), Sept., 435  
 influence of a dispersion on the ductility and fracture behavior of iron (Place and Lund), July, 349  
 S-200 grade beryllium fracture toughness properties (Shabbits and Logsdon), March, 110
- Fracture strength, effect of pyrolytic temperature on the longitudinal strength of dry Douglas-fir (Schaffer), July, 319
- Fracture tests  
 ASTM standardization activities in the fracture testing of beryllium (Brown), March, 87  
 crack toughness evaluation of hot pressed and forged beryllium (Jones, Bubsey, and Brown), March, 100  
 fracture toughness of beryllium (Conrad, Hurd, and Woodard), March, 88  
 simple method for studying slow crack growth (Williams and Evans), July, 264
- Friction, experimental study of static and dynamic friction between sand and typical construction materials (Brumund and Leonards), March, 162
- Frydman, S., Zeitlen, J. G., and Alpan, I.: Membrane effect in triaxial testing of granular soils, Jan., 37
- Fusion (melting), atomic absorption analysis of portland cement and raw mix using a lithium metaborate fusion (Crow and Connolly), Sept., 382
- ## G
- Gardner, E. E.: Silicon epitaxial thickness measurements: why and how, July, 301
- Gay, G. C. W. and Kaiser, W.: Mechanization for remolding fine grained soils and for the plastic limit test, July, 317
- Geometry  
 effect of specimen geometry on hot torsion test results for solid and tubular specimens (Barraclough, Whittaker, Nair, and Sellars), May, 220  
 specimen geometry effects on the strength of unidirectional resin-matrix composites (Loveless), Nov., 532
- Gilbert, Pierre and Keyser, J. H.: Study of currently used methods for determining the permeability of bituminous mixtures, Nov., 484
- Gittler, F. L.: Materials for diffusion and epitaxy, July, 310
- Gjostein, N. A. and Chavka, N. G.: Technological application of auger electron spectroscopy, May, 183
- Gowda, C. V. B.: *see* Leis, B. N., Gowda, C. V. B., and Topper, T. H.
- Grain boundaries, impurity segregation to grain boundaries (Joshi and Stein), May, 202
- Granular materials  
 membrane effect in triaxial testing of granular soils (Frydman, Zeitlen, and Alpan), Jan., 37  
 test procedure for determining the resilient properties of granular materials (Kalcheff and Hicks), Nov., 472
- Graphite, work of fracture and fracture toughness of graphite (Vitovec), May, 250
- Green, S. J.: *see* Babcock, S. G., Norvey, D. B., Green, S. J., and Holt, D. L.
- ## H
- Halkias, J. E.: *see* McKague, E. L., Jr., Reynolds, J. D., and Halkias, J. E.
- Hardrath, H. F.: Structural integrity in aircraft, Jan., 3
- Hart, R. R.: *see* Wonsiewicz, B. C. and Hart, R. R.
- Hawthorne, J. R.: Contributions of selected residual elements to the radiation embrittlement sensitivity of steel forgings, Sept., 439
- Heat transfer, heat transfer in fibrous materials (Bankvall), May, 235
- Heat treatment  
 comparison of the heat treatment responses of three commercial titanium alloys (Fopiano and Hickey), Nov., 514  
 heat treatment effects on the mechanical properties in Ti-6Al-6V-2Sn (Hickey and Fopiano), March, 166
- Hickey, C. F., Jr.  
 and Fopiano, P. J.: Heat treatment effects on the mechanical properties in Ti-6Al-6V-2Sn, March, 166  
*see* Fopiano, P. J. and Hickey, C. F., Jr.
- Hicks, R. G.: *see* Kalcheff, I. V. and Hicks, R. G.
- High strength steels  
 flow and fracture of high strength steels in torsion (Chait), Sept., 435  
 influence of loading variables on environment-enhanced fatigue crack growth in high strength steels (Miller, Hudak and Wei), Nov., 524
- High temperature tests, effect of specimen geometry on hot torsion test results for solid and tubular specimens (Barraclough, Whittaker, Nair, and Sellars), May, 220
- Hilsdorf, H. K., Lorman, W. R., and Monfore, G. E.: Triaxial testing of non-reinforced concrete specimens, July, 330
- Hoge, K. G., Brady, R. L., and Cortez, R.: Tension-compression test fixture to determine Bauschinger effect, July, 288
- Holt, D. L.: *see* Babcock, S. G., Norvey, D. B., Green, S. J., and Holt, D. L.
- Horn, William  
*see* Auskern, Allan and Horn, William  
*see* Wang, J. C. K., Auskern, Allan, and Horn, William
- Hsu, T. C.: *see* Lee, P. K. and Hsu, T. C.
- Hsu, T. R.: Application of the laser beam technique to the improvement of metal strength, Nov., 457
- Hudak, S. J.: *see* Miller, G. A., Hudak, S. J., and Wei, R. P.
- Hurd, J.: *see* Conrad, H., Hurd, J., and Woodard, D.
- Hydrostatic stress, triaxial testing of nonreinforced concrete specimens (Hilsdorf, Lorman, and Monfore), July, 330
- ## I
- Impurities, Armco iron: new concept and broad-data base justify its use as a thermal conductivity reference material (Lucks), Sept., 422
- Insulating oil, some problems in the testing of transformer oil of petroleum origin for dielectric breakdown strength (Shombert), May, 227
- Internal fraction, analog control system for an inverted torsion pendulum (Willertz and Pradhan), Sept., 405
- Iron  
 Armco iron: new concept and broad-data base justify its use as a thermal conductivity reference material (Lucks), Sept., 422

influence of a dispersion on the ductility and fracture behavior of iron (Place and Lund), July, 349  
 Isotropy, laboratory method of preparing isotropic samples of clay (Khera), Nov., 480

## J

James, L. A.: Fatigue-crack growth in type 304 stainless steel weldments at elevated temperatures, Jan., 52  
 Joint B-1 and B-2 Task Group: Annealability testing of copper, Jan., 42  
 Jones, M. H., Bubsey, R. T., and Brown, W. F., Jr.: Crack toughness evaluation of hot pressed and forged beryllium, March, 100  
 Joshi, A. and Stein, D. F.: Impurity segregation to grain boundaries, May, 202

## K

Kaiser, W.: *see* Gay, G. C. W. and Kaiser, W.  
 Kalcheff, I. V. and Hicks, R. G.: Test procedure for determining the resilient properties of granular materials, Nov., 472  
 Kaolinite, versatile control system for triaxial testing of soils (Lamb and Anderson), March, 144  
 Kass, J. L. and Campbell-Allen, D.: Precision of early shrinkage measurements, Jan., 24  
 Keyser, J. H.: *see* Gilbert, Pierre and Keyser, J. H.  
 Khera, R. P.: Laboratory method of preparing isotropic samples of clay, Nov., 480

## L

Lamb, J. H. and Anderson, J. A.: Versatile control system for triaxial testing of soils, March, 144  
 Langer, P. H. and Pearce, C. W.: Epitaxial resistivity, July, 305  
 Laser beams, application of the laser beam technique to the improvement of metal strength (Hsu), Nov., 457  
 Lee, P. K. and Hsu, T. C.: Four aspects of sheet metal formability and their assessment, May, 244  
 Leis, B. N., Gowda, C. V. B., and Topper, T. H.: Some studies of the influence of localized and gross plasticity on the monotonic and cyclic concentration factors, July, 341  
 Leonards, G. A.: *see* Brumund, W. F. and Leonards, G. A.  
 Levadie, Benjamin: *see* O'Neill, Isabel, Levadie, Benjamin, and Ashe, H. B.  
 Load (forces), influence of specimen size and shape on compression perpendicular to the grain of green messmate (Walsh), May, 255  
 Loading, test procedure for determining the resilient properties of granular materials (Kalcheff and Hicks), Nov., 472  
 Logsdon, W. A.: *see* Shabbits, W. O. and Logsdon, W. A.  
 Lorman, W. R.: *see* Hilsdorf, H. K., Lorman, W. R., and Monfore, G. E.

Loveless, H. S.: Specimen geometry effects on the strength of unidirectional resin-matrix composites, Nov., 532  
 Lucks, C. F.: Armco iron: new concept and broad-data base justify its use as a thermal conductivity reference material, Sept., 422  
 Lund, J. A.: *see* Place, T. A. and Lund, J. A.  
 Lynnworth, L. C.: Ultrasonic measurement of elastic moduli in slender specimens using extensional torsional wave pulses, March, 119

## M

Marcus, H. L.: *see* Waldrop, J. R. and Marcus, H. L.  
 Maupin, G. W., Jr.: Development of cold weather paving specifications, Nov., 510  
 McKague, E. L., Jr., Reynolds, J. D., and Halkias, J. E.: Thermomechanical testing of plastics for environmental resistance, Nov., 468  
 Measuring instruments, balanced resonator for infrasonic measurements of Young's modulus and damping in flexure (Papadakis), March, 126  
 Mechanical properties  
   determination of mechanical design properties of materials (Weissmann), March, 133  
   direct nondestructive prediction of engineering properties (Zurbrick), Jan., 13  
   fatigue behavior of solders used in flip-chip technology (Rathore, Yih, and Edenfeld), March, 170  
   fatigue properties of a tin-modified copper nickel alloy (CA-725) (Fox), Sept., 445  
   heat treatment effects on the mechanical properties in Ti-6Al-6V-2Sn (Hickey and Fopiano), March, 166  
   measurements in silicon planar technology: mechanical properties of semiconductor surfaces (Mendel) July, 312  
   metallurgical aspects of the failure of the Point Pleasant Bridge (Bennett and Mindlin), March, 152

## Mechanical tests

  effect of very short time-at-temperature on the yield stress of 6061-T651 aluminum (Babcock, Norvey, Green, and Holt), July, 353  
   finite strain and the 0.01 percent offset yield strength (Wonsiewicz and Hart) Sept., 412  
 Mehan, R. L.: *see* Mullin, J. V. and Mehan, R. L.  
 Membranes, microchemical determination of quartz in granite dust sampled by size selective methods on membrane filters (O'Neill, Levadie, and Ashe), May, 231  
 Mendel, Eric: Measurements in silicon planar technology: mechanical properties of semiconductor surfaces, July, 312  
 Metal powder, flow test for determination of set-time of powdered coatings (Worley and Zell), Sept., 369

Metallography, annealability testing of copper (Joint B-1 and B-2 Task Group), Jan., 42  
 Microscopes, auger electron spectroscopy in the scanning electron microscope (Waldrop and Marcus), May, 194  
 Microstructure, microscopic approach to the microstructure of paving asphalts (Sontowski), March, 149  
 Miller, G. A., Hudak, S. J., and Wei, R. P.: Influence of loading variables on environment-enhanced fatigue crack growth in high strength steels, Nov., 524  
 Mindlin, Harold: *see* Bennett, J. A. and Mindlin, Harold  
 Monfore, G. E.: *see* Hilsdorf, H. K., Lorman, W. R., and Monfore, G. E.  
 Mortars (material), some factors affecting cement mortar strength results using ASTM standard test methods C 348 and C 349 (Zoldners and Carrette), Jan., 31  
 Mullin, J. V. and Mehan, R. L.: Evaluation of composite failures through fracture signal analysis, May, 215  
 Mulvanian, L. E.: Room temperature creep behavior of superplastic Zn-22Al under bending and plane conditions, Jan., 65

## N

Nadarajah, V.: *see* Parry, R. H. G. and Nadarajah, V.  
 Nair, K. D.: *see* Barraclough, D. R., Whittaker, H. J., Nair, K. D., and Sellars, C. M.  
 Nondestructive tests  
   direct nondestructive prediction of engineering properties (Zurbrick), Jan., 13  
   probabilistic updating of flaw information (Tang), Nov., 459  
 Noronha, P. J., Chapman, J. R., and Wert, J. J.: Residual stress measurement and analysis using ultrasonic techniques, May, 209  
 Norvey, D. B.: *see* Babcock, S. G., Norvey, D. B., Green, S. J., and Holt, D. L.  
 Notch sensitivity, contributions of selected residual elements to the radiation embrittlement sensitivity of steel forgings (Hawthorne), Sept., 439

## O

Oils, some problems in the testing of transformer oil of petroleum origin for dielectric breakdown strength (Shombert), May, 227  
 O'Neill, Isabel, Levadie, Benjamin, and Ashe, H. B.: Microchemical determination of quartz in granite dust sampled by size selective methods on membrane filters, May, 231  
 Optical coatings, quantitative adhesion tests of vacuum deposited thin films (Berendsohn), March, 139

## P

Papadakis, E. P.: Balanced resonator for infrasonic measurements of Young's modulus and damping in flexure, March, 126

- Parry, R. H. G. and Nadarajah, V.: Multistage triaxial testing of lightly overconsolidated clays, Sept., 374
- Paving, development of cold weather paving specifications, (Maupin), Nov., 510
- Pearce, C. W.: *see* Langer, P. H. and Pearce, C. W.
- Permeability, study of currently used methods for determining the permeability of bituminous mixtures (Gilbert and Keyser), Nov., 484
- Phase transformations, comparison of the heat treatment responses of three commercial titanium alloys (Fopiano and Hickey), Nov., 514
- Place, T. A. and Lund, J. A.: Influence of a dispersion on the ductility and fracture behavior of iron, July, 349
- Plastic analysis, mechanization for remolding fine grained soils and for the plastic limit test (Gay and Kaiser), July, 317
- Plastic concrete, one-dimensional consolidation of retarded plastic concrete (Uzomaka), Nov., 503
- Plastic deformation, fatigue failure predictions for plates with holes and edge notches (Raske), Sept., 394
- Plastic flow, flow and fracture of high strength steels in torsion (Chait), Sept., 435
- Plastic properties, comparison of bending and tension tests in creep of sheet metal (Duncan and Ragab), Nov., 451
- Plasticity tests, some studies of the influence of localized and gross plasticity on the monotonic and cyclic concentration factors (Leis, Gowda, and Topper), July, 341
- Polarization, residual stress measurement and analysis using ultrasonic techniques (Noronha, Chapman, and Wert), May, 209
- Porosity, capillary porosity in hardened cement paste (Auskern and Horn), Jan., 74
- Portland cements, atomic absorption analysis of portland cement and raw mix using a lithium metaborate fusion (Crow and Connolly), Sept., 382
- Pradhan, A. H.: *see* Willertz, L. E. and Pradhan, A. H.
- Predictions, direct nondestructive prediction of engineering properties (Zurbrick) Jan., 13
- Probability theory, probabilistic updating of flaw information (Tang), Nov., 459
- Pyrolysis, effect of pyrolytic temperatures on the longitudinal strength of dry Douglas-fir (Schaffer), July, 319
- Q**
- Quartz, microchemical determination of quartz in granite dust sampled by size selective methods on membrane filters (O'Neill, Levadie, and Ashe), May, 231
- R**
- Radiation embrittlement, contributions of selected residual elements to the radiation embrittlement sensitivity of steel forgings (Hawthorne), Sept., 439
- Radiography, obtainable radiographic equivalent penetrometer sensitivity (Spletstosser), July, 336
- Ragab, A. R.: *see* Duncan, J. L. and Ragab, A. R.
- Raske, D. T.: Fatigue failure predictions for plates with holes and edge notches, Sept., 394
- Rathore, H. S., Yih, R. C., and Edenfeld, A. R.: Fatigue behavior of solders used in flip-chip technology, March, 170
- Reinforced plastic fire control, analytical prediction of the thermal response of decomposing materials in fire environments (Castle, Alexander, Tempesta, and Belason), Sept., 416
- Reinforced plastics, thermomechanical testing of plastics for environmental resistance (McKague, Reynolds, and Halkias), Nov., 468
- Residual stress  
application of the laser beam technique to the improvement of metal strength (Hsu), Nov., 457  
residual stress measurement and analysis using ultrasonic techniques (Noronha, Chapman, and Wert) May, 209
- Resilience, test procedure for determining the resilient properties of granular materials (Kalcheff and Hicks), Nov., 472
- Resistivity, epitaxial resistivity (Langer and Pearce), July, 305
- Resonators, balanced resonator for infrasound measurements of Young's modulus and damping in flexure (Papadakis), March, 126
- Reynolds, J. D.: *see* McKague, E. L., Jr., Reynolds, J. D., and Halkais, J. E.
- S**
- Schaffer, E. L.: Effect of pyrolytic temperatures on the longitudinal strength of dry Douglas-fir, July, 319
- Sellers, C. M.: *see* Barraclough, D. R., Whittaker, H. J., Nair, K. D., and Sellers, C. M.
- Semiconductor devices  
acquisition of computer aided design/analysis models for semiconductors (Case), July, 295  
epitaxial resistivity (Langer and Pearce), July, 305  
materials for diffusion and epitaxy (Gittler), July, 310  
measurements in silicon planar technology: mechanical properties of semiconductor surfaces (Mendel), July, 312  
silicon epitaxial thickness measurements: why and how (Gardner), July 301
- Sensitivity, obtainable radiographic equivalent penetrometer sensitivity (Spletstosser), July, 336
- Shabbits, W. O. and Logsdon, W. A.: S-200 grade beryllium fracture toughness properties, March, 110
- Sheet metal  
comparison of bending and tension tests in creep of sheet metal (Duncan and Ragab), Nov., 451  
four aspects of sheet metal formability and their assessment (Lee and Hsu), May, 244
- Shombert, George, Jr.: Some problems in the testing of transformer oil of petroleum origin for dielectric breakdown strength, May, 227
- Shrinkage, precision of early shrinkage measurements (Kass and Campbell-Allen); Jan., 24
- Significance, study of currently used methods for determining the permeability of bituminous mixtures (Gilbert and Keyser), Nov., 484
- Silicon  
epitaxial resistivity (Langer and Pearce), July, 305  
materials for diffusion and epitaxy (Gittler), July, 310  
measurements in silicon planar technology: mechanical properties of semiconductor surfaces (Mendel), July, 312  
silicon epitaxial thickness measurements: why and how (Gardner), July, 301
- Soil mechanics  
experimental study of static and dynamic friction between sand and typical construction materials (Brumund and Leonards), March, 162  
laboratory method of preparing isotropic samples of clay (Khera), Nov., 480  
mechanization for remolding fine grained soils and for the plastic limit test (Gay and Kaiser), July, 317  
membrane effect in triaxial testing of granular soils (Frydman, Zeitlen, and Alpan), Jan., 37  
one-dimensional consolidation of retarded plastic concrete (Uzomaka), Nov., 503  
versatile control system for triaxial testing of soils (Lamb and Anderson), March, 144
- Solders, fatigue behavior of solders used in flip-chip technology (Rathore, Yih, and Edenfeld), March, 170
- Sontowski, D. P.: Microscopic approach to the microstructure of paving asphalts March, 149
- Spectroscopy  
auger electron spectroscopy in the scanning electron microscope (WalDROP and Marcus), May, 194  
impurity segregation to grain boundaries (Joshi and Stein), May, 202  
technological application of auger electron spectroscopy (Gjostein and Chavka), May, 183
- Spletstosser, H. R.: Obtainable radiographic equivalent penetrometer sensitivity, July, 336
- Stainless steels  
fatigue-crack growth in type 304 stainless steel weldments at elevated temperatures (James), Jan., 52  
mathematical description of the elevated temperature flow behavior of type 304 stainless steel at high strain rates (Steichen), Nov., 520

- Standards, ASTM standardization activities in the fracture testing of beryllium (Brown), March, 87
- Steichen, J. M.: Mathematical description of the elevated temperature flow behavior of type 304 stainless steel at high strain rates, Nov., 520
- Stein, D. F.: *see* Joshi, A. and Stein, D. F.
- Strain gages, ultrasonic measurement of elastic moduli in slender specimens using extensional torsional wave pulses (Lynnworth), March, 119
- Strain rate, effect of very short time-at-temperature on the yield stress of 6061-T651 aluminum (Babcock, Norve, Green, and Holt), July, 353
- Strains, cyclic stress, strain, and energy variations under cumulative damage tests in low-cycle fatigue (Thang), Jan., 58
- Strength
- multistage triaxial testing of lightly overconsolidated clays (Parry and Nadarajah), Sept., 374
  - work of fracture and fracture toughness of graphite (Vitovec), May, 250
- Stress concentration
- fatigue failure predictions for plates with holes and edge notches (Raske), Sept., 394
  - some studies of the influence of localized and gross plasticity on the monotonic and cyclic concentration factors (Leis, Gowda, and Topper), July, 341
- Stress corrosion, simple method for studying slow crack growth (Williams and Evans), July, 264
- Stress corrosion tests, metallurgical aspects of the failure of the Point Pleasant Bridge (Bennett and Mindlin), March, 152
- Stress ratio, influence of loading variables on environment-enhanced fatigue crack growth in high strength steels (Miller, Hudak, and Wei), Nov., 524
- Stresses
- cyclic stress, strain, and energy variations under cumulative damage tests in low-cycle fatigue (Thang), Jan., 58
  - effect of the intermediate principal stress on triaxial fatigue of 7075-T6 aluminum alloy (Findley and Tracy), Sept., 432
  - residual stress measurement and analysis using ultrasonic techniques (Noronha, Chapman, and Wert), May, 209
- Stress-strain diagrams, fatigue life and inelastic strain response under complex histories for an alloy steel, (Dowling), July, 271
- Surface properties, technological application of auger electron spectroscopy (Gjostein and Chavka), May, 183
- Systems programs, acquisition of computer aided design/analysis models for semiconductors (Case), July, 295
- T**
- Tang, W. H.: Probabilistic updating of flaw information, Nov., 459
- Temperature, development of cold weather paving specifications, (Maupin) Nov., 510
- Tempesta, F. L.
- see* Castle, G. K. Alexander, J. G., Tempesta, F. L., and Belason, E. B.
  - see* Crowley, D. P., Tempesta, F. L., Castle, G. K., Belason, E. B., and D'Avanzo, L. J.
- Tensile properties, mathematical description of the elevated temperature flow behavior of type 304 stainless steel at high strain rates (Steichen), Nov., 520
- Tensile stress, specimen geometry effects on the strength of unidirectional resin-matrix composites (Loveless), Nov., 532
- Tension tests
- balanced resonator for infrasonic measurements of Young's modulus and damping in flexure (Papadakis), March, 126
  - determination of mechanical design properties of materials (Weissmann), March, 133
  - tension-compression test fixture to determine Bauschinger effect (Hoge, Brady, and Cortez), July, 288
- Thang, Bui-Quoc: Cyclic stress, strain, and energy variations under cumulative damage tests in low-cycle fatigue, Jan., 58
- Thermal analysis, analytical prediction of the thermal response of decomposing materials in fire environments (Castle, Alexander, Tempesta, and Belason), Sept., 416
- Thermal conductivity
- Armco iron: new concept and broad-data base justify its use as a thermal conductivity reference material (Lucks), Sept., 422
  - heat transfer in fibrous materials (Bankvall), May, 235
- Thermal measuring instruments, precision of early shrinkage measurements (Kass and Campbell-Allen), Jan., 24
- Thermal resistance
- test facilities for measuring the thermal response of materials to the fire environment (Crowley, Tempesta, Castle, Belason, and D'Avanzo), Sept., 363
  - thermomechanical testing of plastics for environmental resistance (McKague, Reynolds, and Halkias), Nov., 468
- Thermal shock, application of the laser beam technique to the improvement of metal strength (Hsu), Nov., 457
- Titanium, heat treatment effects on the mechanical properties in Ti-6Al-6V-2Sn (Hickey and Fopiano), March, 166
- Titanium alloys, comparison of the heat treatment responses of three commercial titanium alloys (Fopiano and Hickey), Nov., 514
- Topper, T. H.: *see* Leis, B. N., Gowda, C. V. B., and Topper, T. H.
- Torsion
- effect of specimen geometry on hot torsion test results for solid and tubular specimens (Barraclough, Whittaker, Nair, and Sellars), May, 220
  - flow and fracture of high strength steels in torsion (Chait), Sept., 435
- Torsion pendulums, analog control system for an inverted torsion pendulum (Willertz and Pradhan), Sept., 405
- Tracy, J. F.: *see* Findley, W. N. and Tracy, J. F.
- Triaxial fatigue, effect of the intermediate principal stress on triaxial fatigue of 7075-T6 aluminum alloy (Findley and Tracy), Sept., 432
- Triaxial stresses, triaxial testing of non-reinforced concrete specimens (Hilsdorf, Lorman, and Monfore), July 330
- Triaxial tests
- membrane effect in triaxial testing of granular soils (Frydman, Zeitlen, and Alpan), Jan., 37
  - versatile control system for triaxial testing of soils (Lamb and Anderson), March, 144
- U**
- Ultrasonic tests, ultrasonic measurement of elastic moduli in slender specimens using extensional torsional wave pulses (Lynnworth), March, 119
- Uzomaka, O. J.: One-dimensional consolidation of retarded plastic concrete, Nov., 503
- V**
- Vibration, determination of resonant vibration frequency of concrete by an acoustic impact technique (Wang, Auskern, and Horn), July, 291
- Vitovec, F. H.: Work of fracture and fracture toughness of graphite, May, 250
- W**
- Waldrop, J. R. and Marcus, H. L.: Auger electron spectroscopy in the scanning electron microscope, May, 194
- Wallboard, analytical prediction of the thermal response of decomposing materials in fire environments (Castle, Alexander, Tempesta, and Belason), Sept., 416
- Walsh, P. F.: Influence of specimen size and shape on compression perpendicular to the grain of green messmate, May, 255
- Wang, J. C. K., Auskern, Allan, and Horn, William: Determination of resonant vibration frequency of concrete by an acoustic impact technique, July, 291
- Wei, R. P.: *see* Miller, G. A., Hudak, S. J., and Wei, R. P.
- Weissmann, G. F.: Determination of mechanical design properties of materials, March, 133
- Welding, probabilistic updating of flaw information (Tang), Nov., 459
- Wert, J. J.: *see* Noronha, P. J., Chapman, J. R., and Wert, J. J.
- Whittaker, H. J.: *see* Barraclough, D. R., Whittaker, H. J., Nair, K. D., and Sellars, C. M.
- Willertz, L. E. and Pradhan, A. H.: Analog control system for an inverted torsion pendulum, Sept., 405

- Williams, D. P. and Evans, A. G.: Simple method for studying slow crack growth, July, 264
- Wonsiewicz, B. C. and Hart, R. R.: Finite strain and the 0.01 percent offset yield strength, Sept., 412
- Wood, effect of pyrolytic temperatures on the longitudinal strength of dry Douglas-fir (Schaffer), July, 319
- Woodard, D.: *see* Conrad, H., Hurd, J., and Woodard, D.
- Worley, A. A. and Zell, J. G.: Flow test for determination of set-time of powdered coatings, Sept., 369

## X

- X-ray, obtainable radiographic equivalent penetrameter sensitivity (Splettstosser), July, 336

## Y

- Yield strength, finite strain and the 0.01 percent offset yield strength (Wonsiewicz and Hart), Sept., 412
- Yih, R. C.: *see* Rathore, H. S., Yih, R. C., and Edenfeld, A. R.

## Z

- Zeitlen, J. G.: *see* Frydman, S., Zeitlen, J. G., and Alpan, I.
- Zell, J. G.: *see* Worley, A. A. and Zell, J. G.
- Zoldners, N. G. and Carette, G. G.: Some factors affecting cement mortar strength results using ASTM standard test methods C 348 and C 349, Jan., 31
- Zurbrick, J. R.: Direct nondestructive prediction of engineering properties, Jan., 13