

(March 27, 1926)

RECENT METALLURGICAL PUBLICATIONS FROM THE
DIVISION OF METALLURGY

April 23, 1924 - March 27, 1926.

B. S. Pub. No.	Title	1923	Author	Price.
*S452	Structure of martensitic carbon steels and changes in microstructure on tempering.		H.S.Fawdon S.Epstein	15¢
S463	Preparation and properties of pure iron alloys, II. Magnetic properties of iron alloys		W.L.Cheney	15¢
S464	Preparation and properties of pure iron alloys, III. Effect of Mn on structure of Fe-C alloys.		H.S.Fawdon F.Sillers, Jr.	10¢
<u>1924</u>				
S484	Preparation and properties of pure iron alloys, IV. Critical ranges of Fe-C alloys by the thermoelectric method.		J.F.T.Berliner	05¢
S483	Investigations on Pt metals, IV. Determination of Ir in Pt alloys.		R. Gilchrist	05¢
S488	Thermal expansion of molybdenum		P.Hidnert, W.B.Gero	10¢
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C101	Physical properties of materials, I. Strengths and related properties of metals and woods.		(2d.ed., re- vised) S.N.Petrenko	40¢

*Note:-

C = Circular

S = Scientific Paper

T = Technologic Paper

M = Misc. Pub.

Government publications may be obtained at the prices shown, (stamps not accepted) from Superintendent of Documents, Government Printing Office, Washington, D. C.

C297	U. S. Government master specifications for plastic fire-clay refractories		05¢
T263	Tangent modulus and strength of steel columns in tests.	O.H.Basquin	20¢
T260	Tests of some girder hooks.	H.L.Whittemore A.H.Stang	10¢
C 58	Invar and related nickel steels.	(2d ed., Revised) E.C.Groesbeck	10¢
T275	Design of specimens for short-time fatigue tests.	L.B.Tuckerman C.S.Aitchison	05¢
M 62	Table of Brinell hardness numbers	S.N.Petrenko	05¢
T252	The nick-bend test for wrought iron	H.S.Rawdon, S. Epstein	10¢
T257	Development of a method for measurement of internal stress in brass tubing.	R.J.Anderson, E.G.Fahlman (Work of Bu. Mines)	10¢
C100	Nickel and its alloys.	(2d.ed., Revised) E.C.Groesbeck	40¢

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T261	Influence of S, O, Cu and Mn on red-shortness of iron.	J.R.Cain (Res.Assoc.)	10¢
T267	Effect of hot-rolling conditions on the physical properties of a carbon steel.	J.F.Freeman, Jr, A.T.Derry.	10¢
S497	Thermal expansion of aluminum and its alloys.	P.Hidnert	15¢
T281	Malleability and metallography of nickel	P.D.Merica, R.G.Waltenberg (Res.Assoc.)	10¢
T285	Release of internal stress in brass tubing.	R.J.Anderson E.G.Fahlman (work of Bu. Mines)	15¢

T288	Comparative cold-rolling tests of open-hearth steel strip (deep drawing stock) and electrolytic iron strip.	J.R.Freeman, Jr. R.D.France	10¢
T289	Impact and slow bending notched bar tests.	S.N.Petrenko	20¢
T295	Initial temperature and mass effects in quenching.	H.J.French, O.Z.Klopsch.	10¢
C214	Medium and light rust preventive compounds.		05¢
T296	Flow in a low-carbon steel at various temperatures.	H. J.French, W.A.Tucker.	10¢
	National Directory of Commodity Specifications (27,000 specifications listed)		\$1.25

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S510	Effect of wear on the magnetic properties and tensile strength of steel wire.	R.L.Sanford, W.L.Cheney	05¢
S513	Origin of Quenching Cracks.	H.Scott	20¢
S514	Gases in Metals, II. The determination of oxygen and hydrogen in metals by fusion in vacuum.	L.Jordan, J.R.Eckman.	10¢
S515	Thermal expansion of tungsten	P.Hidnert, W.T.Sweeney	05¢
S517	A special camera for photographing cylindrical surfaces.	R.Davis	10¢
S518	Metallographic etching reagents.	E.C.Groesbeck	25¢
BH-8	Recommended building code requirements for unit working stresses in building materials.	J.M.Gries	10¢

Publications of a General Nature.

C 1	National Bureau of Standards, Its Functions and Activities.	(Revised)	50¢
C296	Research Associates at the Bureau of Standards		10¢
M 46	War Work of the Bureau of Standards		70¢
M 63	Report of Board Visitors to Bureau of Standards of the Department of Commerce for the Secretary of Commerce.		05¢
M 60	Annual Report of the Director of the Bureau of Standards to the Secretary of Commerce for the Fiscal Year Ended June 30, 1924		10¢
M 69	Annual Report of the Director of the Bureau of Standards for the Fiscal Year Ended June 30, 1925.		05¢

Government Publications in Press.

Sci. Paper,	Pure zinc at normal and elevated temperatures.	J.R.Freeman, Jr., F.Sillers, Jr., P.F.Brandt.
Mis. Pub.	Hartman Luder lines	
Tech. Paper	Compressive tests of structural members of the Delaware river bridge.	R.S. Johnston
Tech. Paper	Some Characteristics of Quenching Curves.	H.J. French, O.Z. Klopsch.
Sci. Paper	Melting Point of Palladium 1553°	C.O. Fairchild
Sci. Paper	Non-destructive testing of wire rope.	R.L. Sanford

Simplified Practice Recommendations (Department of Commerce)

Metal lath	R 3	05¢
Forged tools	R 17	"
Steel barrels and drums	R 20	"
Brass lavatory and sink traps	R 21	"
Plow bolts	R 23	"
Steel lockers	R 35	"
Steel reenforcing bars	R 23	"
Sheet steel	R 28	"
Terneplate	R 30	"

Mimeographed Reports

Reports to the gage steel committee, 1924-5.	H. Scott	Nos. 15, 16 17, 18, 19.
Initial Corrosion losses of specimens buried in soil.	K.H. Logan	Feb. 1925.
1st progress report on abnormal steel.	H.S. Rawdon, S. Epstein	May, 1924.
2nd progress report on abnormal steel.	H.S. Rawdon S. Epstein	July, 1925.

Iron and Steel Scrap Specifications, Metal Utilization Committee, Division of Simplified Practice, Department of Commerce.

Specifications Promulgated by the Federal Specifications Board.

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Letter Circulars - (obtainable only through this Bureau)

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191	Testing laboratories equipped for mechanical tests of metals and other engineering materials
192	Corrosion resistance of iron and steel
195	Testing laboratories equipped for metallurgical tests

OUTSIDE PUBLICATIONS*

1923

<u>Author</u>	<u>Title</u>	<u>Reference</u>
Marshall, L.H.	Contribution to discussion of experiments with sheradizing.	Am.Inst.Min. Met.Eng. 68. p.764.
Vanick, J.S. Herschman, H.K.	Coatings for selective carburization.	Trans.Am.Soc. Steel Treating, 3, p. 305

1924

Jordan, L. Barrows, W.P.	Mercury poisoning from electric furnaces.	Jour.Ind.Eng. Chem. 16, p.898
deSveshnikoff, W.W. Haring, H.E.	Electroplating worn machine-gun barrels.	Army Ordnance Journal, 5, p.503
deSveshnikoff, W.W.	Carburization as a factor in the erosion of machine gun barrels	Army Ordnance Journal, 5, p.794.
Rawdon, H.S. Krynitsky, A.I.	Notes on corrosion testing by different immersion methods.	Trans.A.E.S. 46, p.359.
Rawdon, H.S. Krynitsky, A.I. Finkeldey, W.H.	Types of apparatus for testing corrodibility of metals.	Proc.A.S.T.M. 24, (2) p.717.
Rawdon, H.S. Mutchler, W.H.	Effect of severe cold working on scratch and brinell hardness.	Am.Inst.Min.Met. Eng. 70, p.342.
Rawdon, H.S.	Contribution to discussion of corrosion of brass as affected by grain size.	Am.Inst.Min.Met. Eng. 70, p.401.
deSveshnikoff, W.W.	Some metallurgical problems of military interest at the bureau of standards.	Army Ordnance Journal, 5, July, 1924.

* Copies of outside publications are not obtainable from the Superintendent of Documents, and Reprints are seldom available from the Bureau. The journals may be consulted at most technical libraries.

- | | | |
|---|---|---|
| Sager, T.P. | Report on corrosion tests of iron and steel submerged in running water at the Bureau of Standards and at Annapolis, Md. | Proc. Am. Soc. Test. Matl. 24, (1) p.228. |
| Vanick, J.S.
(work of Fixed Nit. Res. Lab. at Bu. Standards) | Deterioration of some metals in hot, reducing, ammonia gases | Proc. A.S.T.M., 24, (2) p.348. |
| French, H.J.
Tucker, W.A. | Available data on properties of irons and steels at various temperatures. | Proc. A.S.T.M., 24, (2) p.56. |
| Freeman, J.R. Jr.
Brandt, P.F. | Effect of impurities on compressive strength and hardness of Babbitt metals at normal and elevated temperatures. | Proc. A.S.T.M., 24, (2), p.253. |
| Gillett, H.W.
Mack, E.L.
(work of Bu. Mines) | Notes on some endurance tests of metals. | Proc. A.S.T.M., 24, (2), p.476. |
| Burgess, G.K.
Chairman. | Reports of joint committee on investigation of phosphorus and sulphur in steel. | Proc. Am. Soc. Test. Matls. 24, (1) 96, 108, 185. |
| Scott, H. | Quenching properties of glycerin and its water solutions. | Trans. Am. Soc. Steel Treat. 6, 13. |
| French, H.J.
Klopsch, O.Z. | Quenching diagrams for carbon steels in relation to some quenching media for heat-treatment. | Trans. Am. Soc. Steel Treat. 6, p.251. |
| Sanford, R.L. | The present status of magnetic analysis. | Trans. Am. Soc. Steel Treat. 5, p.577. |
| Logan, K.H. | Corrosion of underground pipe lines. | Chem. Met. Eng. 31, p.1011. |
| Waltenberg, R.G.
(Res. Assoc.) | Measuring metal's resistance to shock. | Chem. Met. Eng. 31, p.657. |

- | | | |
|-----------------|--|---|
| Gillett, H.W. | Chemistry in Industry, Vol.I,
Chap. 13, Non-ferrous metallurgy. | The Chemical
Foundation,
1924. |
| Petrenko, S.N. | Mechanical meaning of hardness
numbers. | Mech.Eng. <u>46</u> ,
p. 926. |
| Krynitsky, A.I. | Written discussion on Krivobok
and Romig paper - surface vs
inner structure. | Trans. Am. Soc.
Steel Treat.
<u>6</u> , p. 630. |
| Scott, H. | Written discussion on Bain paper
nature of martensite. | Trans. Am.Inst.
Min. & Met. Eng.,
<u>70</u> , p. 42 |
| Rawdon, H.S. | Written discussion on Bain paper
nature of martensite. | Trans. Am. Inst.
Min. & Met. Eng.,
<u>70</u> , p. 37. |
| Burgess, G.K. | Scientific Work which our govern-
ment is carrying on and its in-
fluence on the nation. | Sci. Monthly,
19, p. 113,
Aug, 1924. |

1925

- | | | |
|---|--|---|
| Rawdon, H.S.
Epstein, S. | Metallographic study of welded
rails, included in Progress
Report No. 3, Committee on Weld-
ed Rails. | Jour. Am. Weld.
Soc. <u>4</u> , p.90. |
| Saeger, C.M.Jr. | Classification and testing of
molding sands, included in com-
mittee reports. | Trans. Am. Fdry.
Assn. 32, (2)
121, 232. |
| Logan, K.H. | Report of soil corrosion investi-
gation. | Am. Fdry. Assn.
preprint No.447. |
| Merica, P.D.
Waltenberg, R.G.
(Res.Assoc). | The malleability of nickel. | Am. Inst. Min.
& Met. Eng. <u>71</u>
p.709. |
| Gillett, H.W.
Mack, E.L.
(work of Bu.
Mines) | Molybdenum, cerium and related
alloy steels. | Tech. monograph
series, Am.Chem.
Soc. Chem.Catalog
Co. 1925. |
| Blum, W. | Chemistry in Industry, Vol. II,
Chap. 12, Electroplating and
electro-forming. | The Chemical
Foundation,
1925. |

- Burgess, G.K. Gages, a key problem. Jour. Soc. Auto. Eng. 16, p.456.
- Souder, W. Physical properties of dental materials. Jour. Am. Dental Assn. May, 1925.
- Coleman, R.L. Jr. Physical properties of dental (Res. Assoc.) materials, Vol. II, Wrought gold alloys. Jour. Am. Dental Assn. May, 1925.
- Rawdon, H.S. Note, Observations on the "Hydrogen point", in iron. Phys. Rev. 25, p. 898.
- Rawdon, H.S. Note, Observations on the transformation in austenitic steel as induced by cooling in liquid air. Phys. Rev. 25, p. 898.
- Rawdon, H.S. Report of Sub-Committee V and E-4 on Micro-hardness. Proc. A.S.T.M. 25, (1) p.442.
- Rawdon, H.S. Written discussion on Poluskin paper - metallographic planimeter. Am. Inst. Min. & Met. Eng. 71, p.687.
- Gillett, H.W. Written discussion on Hibbard paper - Melting temperature of steel. Am. Inst. Min. & Met. Eng. 71, p.496.
- Rosenberg, S.J. Written discussion on Honda and Yamada paper - Wear of metals. British Inst. Metals, 33, p.69.
- Krynitsky, A.I. Written discussion on Malinovsky paper - Enameling defects due to cast iron. Am. Ceramic Soc. 8, Oct, 1925. p.618.
- French, H.J. Written discussion on Jasper paper - Static and fatigue tests at elevated temperatures. Proc. A.S.T.M. 25, (2) p. 34.
- Meggers, W.F. Periodic structural regularities in spectra as related to the periodic law of the chemical elements. Natl. Academy of Science, 11, Jan. 1925, p.43.
- Rawdon, H.S. Report of Sub-committee VII of A-5 on accelerated corrosion tests. Proc. A.S.T.M. 25, (1) p.103.

Cain, J.R. (Res. Assoc.) A.A. Peterson.	A laboratory high frequency vacuum furnace. Avoids softness in carburizing (abstract; of 2nd progress report)	Trans. Am. Electrochem. Soc. <u>48</u> , Iron Trade Rev. <u>77</u> , p.308.
Lundell, G.E.F. Knowles, H.B.	Determination of uranium.	Jour. Am. Chem. Soc. <u>47</u> , p.2637.
Thompson, M.R.	Nickel plating of zinc and zinc base die castings.	Am. Electrochem. Soc. <u>47</u> , p.163. and <u>L.C.</u> 163.
Thomas, C.T. Blum, W.	Protective value of nickel plating.	Trans. Am. Electrochem. Soc. <u>48</u> , and <u>LC</u> 172.
Winkler, J.H. (Res. Assoc.) Blum, W.	Nickel electrotyping solutions.	Int. Assoc. of Electrotypers -
Chase, C.E.	Research and experimental tests in connection with the design in the bridge over the Delaware between Philadelphia and Camden.	Engineers & Engineering, <u>42</u> , Aug. 1925, p.197.
French, H.J. Digges, T.G.	Experiments with nickel, tantalum, cobalt and molybdenum in high speed steels.	Trans. Am. Soc. Steel Treat. <u>8</u> , p.681.
Rosenberg, S.J.	Lead filings and zinc dust as pipe jointing material.	Am. Gas Assoc. Monthly <u>7</u> , p.701.
Jordan, L. Eckman, J.R. Jominy, W.E.	Oxygen content of coke and charcoal cast iron.	Am. Fdry. Assn. Oct, 1925, pre-print No.479.
Gillett, H.W.	Active metallurgical research.	Iron Age, <u>116</u> , Aug. 27, 1925, p.536.
Gillett, H.W.	Standards bureau metal research.	Iron Age, <u>116</u> , Aug. 30, 1925, p.461.
Haring, H.E.	Principles and operating conditions of chromium plating.	Chem. Met. Eng. 32, 692, 756; Brass World, 21395; Met. Ind., London, <u>27</u> , 310, 1925; Mon. Rev. Am. Electroplaters Soc. <u>12</u> , 1925. <u>LC</u> 177.

- | | | |
|----------------|--|--|
| Blum, W. | Teaching principles of electrodeposition. | Jour. Chem. Education, 2, July, 1925, p. 556. |
| Petrenko, S.N. | Comparative slow bend and impact notched bar tests on some metals. | Trans. Am. Soc. Steel Treat. 8, Nov. 1925, p. 519. |
| French, H.J. | Discussion, Properties of metals at high temperatures. | Proc. Am. Soc. Test. Matls. 25, (2) p. 34. |
| Burgess, G.K. | Work of the Bureau of Standards | Military Engineers, 17, p. 455, Nov-Dec. 1925. |
| Burgess, G.K. | What the Bureau of Standards is doing for American Industry. | Industrial Management. 70, Nov. 1925, p. 257. |

1926

- | | | |
|-------------------------------|--|--|
| Burgess, G.K. | Organization and work of the United States Bureau of Standards. | Jour. Chem. Education, 3, p. 7. |
| Kjerrman, B.
(Res. Fellow) | Effect of manganese, silicon and phosphorus on the pearlite interval. | Trans. Am. Soc. Steel Treat, 9, March, 1926, p. 430. |
| Jordan, L.
Eckman, J.R. | Determination of oxygen and hydrogen in metals by fusion in vacuum. | Ind. & Eng. Chem. 18, Mar. p. 279. |
| French, H.J.
Klopsch, O.Z. | Initial temperature and mass effects in quenching. | Trans. Am. Soc. Steel Treat. 9, Jan. p. 33. |
| Scott, H. | Dimensional changes accompanying the phenomena of tempering and aging tool steels. | Trans. Am. Soc. Steel Treat. 9, Feb. p. 277. |
| Rawdon, H.S. | Note on the protection of iron by cadmium. | Am. Electrochem. Soc. April, 1926. |

- Haring, H.E. A simple method for measuring polarization and resistivity. Am. Electrochem. Soc. preprint April, 1926.
- Gillett, H.W. Chemistry in the metallurgical division of the Bureau of Standards. Journal Chem. Education 3, p.148.
- Freeman, J.R. Jr., Tensile properties of soldered joints under prolonged stress. Metal Industry 24, p.7.
- Quick, G.W. Chromium plating on printing plates. Met. Ind. 24, Feb. p. 68.
- Haring, H.E. Relation between metallurgy and atomic structure. Am. Inst. Min. & Met. Eng. preprint 1926.
- Foote, P.D. Rapid determination of small amounts of aluminum in certain non-ferrous materials. Ind. & Engng. Chem 18, 60, 1926.
- Lundell, G.E.F. Tests on welded pressure vessels. Proc. Am. Soc. Refrigerating Engineers Jan, 1926, p.215.
- Roller, L.H.

Publications Pending or in Press

Kjerrman, B. (Res. Fellow)	Some comments on Swedish steel practice.	Trans. Am. Soc. Steel Treat. 9, 1926, (April)
Rawdon, H.S. Epstein, S.	Observations on phosphorus in wrought iron made by different puddling processes.	Am. Iron & Steel Inst. (May) 1926.
French, H.J.	Methods of test in relation to flow in steels at various temperatures.	Am. Soc. Test. Matl. June 1926.
Rawdon, H.S. Hidnert, P. Tucker, W.A.	Some effects of hydrogen in iron.	Trans. Am. Soc. Steel Treat. 1926.
Freeman, J.R. Jr.	Recrystallization temperatures of cold rolled electrolytic iron and open hearth steel strip.	Trans. Am. Soc. Steel Treat. 9, 1926, (May)
Vanick, J.S. Kuenel, A.B. deSvesnikoff, W.W.	Deterioration of some steels in synthesis of ammonia.	
Swanger, W.H.	Analysis of dental gold alloys.	
Rawdon, H.S.	Report of Sub-Com. V of E-4 on micro-hardness.	Am. Soc. Test. Matls. June, 1926.
Quick, G.W.	Report of Sub-Com. IV of D-14 on testing screen wire cloth.	Am. Soc. Test. Matls, June, 1926.
Rawdon, H.S. Groesbeck, E.C.	Report on non-ferrous corrosion.	Am. Soc. Test., Matls. June, 1926.
Groesbeck, E.C.	Report on etching reagents for alloy steels	Am. Soc. Test., Matls. June, 1926.
Ingberg, S.H. Sale, P.D. Jr.	Strength and deformation of structural steel and cast iron shapes at temperatures up to 950°C.	Am. Soc. Test., Matls. June, 1926.
French, H.J. Klopsch, O.Z.	Some characteristics of quenching curves.	Am. Soc. Steel Treat, 1926.