INFORMATION CIRCULARS

321. Barkley, J. F. Pointers on the Storage of Coal. I. C. 7211, 1942, 7 pp.; Black Diamond, vol. 111, Sept. 18, 1943, pp. 18–19; Coal Heat, vol. 41, April 1942, pp. 44–45; Combustion, vol. 14, July 1942, pp. 33–35.
322. ——— The Storage of Coal. I. C. 7235, 1943, 14 pp.
323. Parry, V. F. Questions and Answers on Storage of Coal in the Rocky Mountain Area. I. C. 7214, 1942, 9 pp.; printed as I. C. by Colorado School of Mines, Golden, Colo., May 20, 1942.

OTHER PUBLICATIONS

324. Barkley, J. F. Preventing Spontaneous Combustion in Stored Coal. Smoke Prevention Assoc., Manual of Instructions on Proper Firing Methods, 1943, pp. 1–7.
325. ——— Problems Encountered in the Storage of Bituminous Coal. Nat. Eng., vol. 45, 1941, pp. 816–820, 822.
326. Schmidt, L. D. Effects of Storage and Oxidation of Coal Upon Coking Properties. Iron and Steel Eng., vol. 18, March 1941, pp. 64–70; discussion, pp. 70–72.
327. Schmidt, L. D., and Elder, J. L. Atmospheric Oxidation of Coal at Moderate Temperatures—Rates of the Oxidation Reaction for Representative Coking Coals. Ind. Eng. Chem., ind. ed., vol. 32, 1940, pp. 249–256.
328. Schmidt, L. D., Elder, J. L., and Davis, J. D. Atmospheric Oxidation of Coal at Moderate Temperatures—Effect of Oxidation on the Carbonizing Properties of Representative Coking Coals. Ind. Eng. Chem., ind. ed., vol. 32, 1940, pp. 548–555.
329. ——— Influence of Storage on Caking and Coking Properties of Coal. Ind. Eng. Chem., ind. ed., vol. 35, 1943, pp. 150–155.

10. CARBONIZATION, INCLUDING TESTING METHODS

TECHNICAL PAPERS

330. Davis, J. D., Reynolds, D. A., Ode, W. H., and Holmes, C. R. Carbonizing Properties of Pocahontas No. 3-Bed Coal from Kimball, McDowell County, W. Va., and the Effect of Blending This Coal with Pittsburgh-Bed Coal. Tech. Paper 670, 1944, 35 pp. 10 cents.
331. Davis, J. D., Reynolds, D. A., Sprunk, G. C., and Holmes, C. R. Carbonizing Properties and Petrographic Composition of Bakerstown-Bed Coal from No. 23 Mine, Coketon, Tucker County, W. Va., and the Effect of Blending This Coal with Pittsburgh-Bed (Warden Mine) Coal. Tech. Paper 644, 1942, 46 pp. 15 cents.
332. ——— Carbonizing Properties and Petrographic Composition of Lower Hignite-Bed Coal from the Atlas Mine, Middlesboro, Bell County, Ky., and the Effect of Blending This Coal with Pocahontas No. 3- and No. 4-Bed Coals. Tech. Paper 634, 1942, 47 pp. 10 cents.
333. ——— Carbonizing Properties and Petrographic Composition of Powellton-Bed Coal from Elk Creek No. 1 Mine, Emmett, Logan County, W. Va., and the Effect of Blending This Coal with Pocahontas No. 3- and No. 4-Bed Coals. Tech. Paper 630, 1941, 45 pp. 10 cents.
334. Davis, J. D., Reynolds, D. A., Brewer, R. E., Sprunk, G. C., and Schmidt, L. D. Carbonizing Properties and Petrographic Composition of No. 1-Bed Coal from Bell No. 1 Mine, Sturgis, Crittenden County, Ky., and the Effect of Blending This Coal with Pocahontas No. 3- and No. 4-Bed Coals. Tech. Paper 628, 1941, 45 pp. 10 cents.
335. Davis, J. D., Reynolds, D. A., Sprunk, G. C., Holmes, C. R., and Fieldner, A. C. Carbonizing Properties and Petrographic Composition of Taggart-Bed Coal from Mines 30 and 31, Lynch, Harlan County, Ky., and the Effect of Blending This Coal with Pocahontas No. 3- and No. 4-Bed Coals. Tech. Paper 650, 1943, 45 pp. 10 cents.

336. Davis, J. D., Reynolds, D. A., Sprunk, G. C., Holmes, C. R., and McCartney, J. T. Carbonizing Properties and Petrographic Composition of No. 2-Bed Coal from Bartoy Mine and No. 5-Bed Coal from Wilkeson-Miller Mine, Wilkeson, Pierce County, Wash. Tech. Paper 649, 1942, 46 pp. 10 cents.
337. ——— Carbonizing Properties and Petrographic Composition of Thick Freeport-Bed Coal from Harmar Mine, Harmarville, Allegheny County, Pa., and the Effect of Blending This Coal with Pocahontas No. 3- and No. 4-Bed Coals. Tech. Paper 655, 1943, 46 pp. 10 cents.
338. Davis, J. D., Reynolds, D. A., Elder, J. L., Ode, W. H., Holmes, C. R., and McCartney, J. T. Carbonizing Properties of Western Region Interior Province Coals and Certain Blends of These Coals. Tech. Paper 667, 1944, 138 pp. 20 cents.
339. Fieldner, A. C., Davis, J. D., Reynolds, D. A., Brewer, R. E., Sprunk, G. C., and Schmidt, L. D. Carbonizing Properties and Petrographic Composition of Lower Banner-Bed Coal from Keen Mountain Mine, Buchanan County, Va,, and the Effect of Blending This Coal with Pittsburgh-Bed (Warden Mine) Coal. Tech. Paper 616, 1940, 47 pp. 10 cents.
340. Fieldner, A. C., Davis, J. D., Reynolds, D. A., Schmidt, L. D., Brewer, R. E., Sprunk, G. C., and Holmes, C. R. Carbonizing Properties and Petrographic Composition of Pocahontas No. 3-Bed Coal from Buckeye No. 3 Mine, Wyoming County, W. Va., and of Pocahontas No. 4-Bed Coal from No. 4 Mine, Raleigh County, W. Va. Tech. Paper 604, 1940, 65 pp. 15 cents.
341. Fieldner, A. C., Davis, J. D., Selvig, W. A., Reynolds, D. A., Brewer, R. E., Sprunk, G. C., and Holmes, C. R. Carbonizing Properties and Petrographic Composition of Upper Freeport Coal from Morgantown District, Monongalia County, W. Va., and of Lower Freeport Coal from Eastern Indiana County Near Cambria County, Pa. Tech. Paper 621, 1941, 77 pp. 15 cents.
342. Wilson, J. E., and Davis, J. D. Index of Coals Tested in the Bureau of Mines Survey of Carbonizing Properties of American Coals. Tech. Paper 637, 1942, 10 pp. 5 cents.

REPORTS OF INVESTIGATIONS

343. Brewer, R. E. Effect of Acids and Alkalies Upon Carbonization Products of Coal. R. I. 3726, 1943, 20 pp.
344. Davis, J. D., and Reynolds, D. A. Work of the Survey of Carbonizing Properties of American Coals. R. I. 3760, 1944, 17 pp.
345. Parry, V. F. Correlation of Analysis of Coal with the Products of Carbonization in Externally Heated Retorts. R. I. 3482, 1939, 37 pp.
346. Reynolds, D. A., and Davis, J. D. Coal Carbonization: Carbonizing Properties of Medium-Volatile Coals of Different Types. R. I. 3749, 1944, 8 pp.

OTHER PUBLICATIONS

347. Davis, J. D. Coke and Byproduct Yields from Various Coals. Iron and Steel Eng., vol. 17, February 1940, pp. 47–62; discussion, pp. 62–63.
348. ——— Summary of Investigations for Fiscal Year Ended June 30, 1943. Proc. Am. Gas Assoc., 1943, pp. 234–241.
349. Davis, J. D., and Reynolds, D. A. Carbonizing Properties of Henryetta Bed Coal from Atlas No. 2 Mine, Henryetta, Okmulgee County, Oklahoma (Preliminary Report). Oklahoma Geol. Survey, Mineral Rept. 12, 1941, 6 pp. (Obtainable only from Oklahoma Geol. Survey, Norman, Okla.).
350. ——— Carbonizing Properties of McAlester Bed Coal from Dow No. 10 Mine, Dow, Pittsburgh County, Oklahoma (Preliminary Report). Oklahoma Geol. Survey, Mineral Rept. 15, 1942, 11 pp. (Obtainable only from Oklahoma Geol. Survey, Norman, Okla.)
351. ——— Influence of Resins in a Utah Coal on Its Coking Properties. Fuel in Sci. and Practice, vol. 23, 1944, pp. 37–40.

352. Fieldner, A. C. Coal Processing and Carbonization Plants Working at Capacity—Some Improvements Made. Min. and Met., vol. 24, 1943, pp. 80–81.
353. ——— Discussion of "Correlation of the Bureau of Mines—American Gas Association Carbonization Assay Tests with Coal Analyses," by H. H. Lowry, H. G. Landau, and Leah L. Naugle. Trans. Am. Inst. Min. and Met. Eng., Coal Div., vol. 149, 1942, pp. 326–328.
354. ——— Problems of Metallurgical Coke for Western Furnaces Being Solved—Byproducts in Demand. Min. and Met., vol. 25, 1944, pp. 101–102.
355. ——— Processing and Carbonization. Additional Byproduct Ovens Required—Wider Use of Coal as a Chemical Raw Material Noted. Min. and Met., vol. 22, 1941, pp. 114–115.
356. ——— Processing and Carbonization. But Little New Construction Seen—Some Research on Liquid Fuel Production. Min. and Met., vol. 21, 1940, pp. 33–35.
357. ——— Processing and Carbonization of Coal. Min. and Met., vol. 23, 1942, pp. 103–104.
358. Reynolds, D. A. Carbonization. Research and Progress in the Production and Use of Coal, by A. C. Fieldner and W. E. Rice, Nat. Resources Planning Board Tech. Paper 4, 1941, pp. 28–32.
359. Reynolds, D. A., and Birge, C. W. Coal Carbonization—Gas Pressures Within the Uncarbonized Part of a Charge. Ind. Eng. Chem., ind. ed., vol. 32, 1940, pp. 363–367.

A. HIGH TEMPERATURE

REPORTS OF INVESTIGATIONS

360. Daniels, Joseph. Beehive and Byproduct Coking in Washington. R. I. 3551, 1941, 77 pp.
361. Davis, J. D. Selection of Coals for Coke-Making. R. I. 3601, 1942, 22 pp. (Out of print.)
362. McCartney, J. T., and Davis, J. D. Expansion of Coal during Coking. R. I. 3644, 1942, 23 pp.
363. Seymour, William, and Schmidt, L. D. Control of the Bulk Density of the Coal Charge in Byproduct Coke Ovens. R. I. 3743, 1943, 13 pp.
364. Schmidt, L. D., Schroeder, W. C., and Fieldner, A. C. Increased Pig-Iron Output Through Improved Coke. R. I. 3711, 1943, 58 pp.
365. Scott, G. S., Kelley, J. A., Fish, E. L., and Schmidt, L. D. Modern Beehive Coke-Oven Practice. I. Preliminary Report. R. I. 3738, 1943, 14 pp.
366. Yancey, H. F., Daniels, Joseph, McMillan, E. R., and Geer, M. R. Byproduct Coke-Oven Tests of Washington Coals. R. I. 3717, 1943, 46 pp.

OTHER PUBLICATIONS

367. Fieldner, A. C. Better Coke for More Pig Iron Production. Blast Fur. and Steel Plant, vol. 30, 1942, pp. 1279–1281, 1306–1307.
368. Kelley, J. A. Beehive Coke Industry Revived. Min. Cong. Jour., vol. 29, September 1943, pp. 22–25.
369. ——— Manufacture of Beehive Coke. Proc. Blast Furnace and Raw Materials Committee. Am. Inst. Min. and Met. Eng., vol. 4, 1944, pp. 26–42.

B. LOW-TEMPERATURE

TECHNICAL PAPER

370. Selvig, W. A., Ode, W. H., and Davis, J. D. Low-Temperature Carbonization of Alaskan Coals. Tech. Paper 668, 1944, 16 pp. 10 cents.

REPORTS OF INVESTIGATIONS

371. Fieldner, A. C., Davis, J. D., Parry, V. F., Schmidt, L. D., Elder, J. L., Goodman, J. B., Landers, W. S., and Goodwin, E. W. Tests of the Heliopore Coal-Carbonization Power-Plant Process. R. I. 3733, 1943, 36 pp.
372. Ode, W. H., and Selvig, W. A. Low-Temperature Distillation Yields of Primary Tar and Light Oil from Coals of Various Ranks and Types. R. I. 3748, 1944, 10 pp.

11. COMPLETE GASIFICATION: WATER-GAS, PRODUCER-GAS, AND MIXED-GAS PRODUCTION

REPORT OF INVESTIGATIONS

373. Odell, W. W. Carbonization of Bevier-Bed Coal from Kansas and Production of Blue Water Gas from the Resulting Coke. R. I. 3671, 1942, 21 pp.

OTHER PUBLICATIONS

374. Elliott, M. A. Gasification. Research and Progress in the Production and Use of Coal, by A. C. Fieldner and W. E. Rice, Nat. Resources Planning Board Tech. Paper 4, 1941, pp. 33–44.
375. Scott, G. S. Mechanism of the Steam-Carbon Reaction. Ind. Eng. Chem., ind. ed., vol. 33, 1941, pp. 1279–1285.
376. Warner, B. R. Mechanism of the Steam-Carbon Reaction. Jour. Am. Chem. Soc. vol. 65, 1943, pp. 1447–1451.
377. ——— Pressure Dependence of the Rate of Gasification of Carbon. Jour. Am. Chem. Soc., vol. 66, 1944, pp. 1306–1309.

12. HYDROGENATION AND SYNTHETIC PRODUCTS

TECHNICAL PAPERS

378. Fieldner, A. C., Storch, H. H., and Hirst, L. L. Bureau of Mines Research on the Hydrogenation and Liquefaction of Coal and Lignite. Tech. Paper 665, 1944, 69 pp. 15 cents. Am. Inst. Min. and Met. Eng., Tech. Pub. 1750, 1944, 19 pp.; Trans., Coal Div., vol. 157, 1944, pp. 341–359; discussion, pp. 359–362.
379. Fisher, C. H., Sprunk, G. C., Eisner, Abner, O'Donnell, H. J., Clarke, Loyal, and Storch, H. H. Hydrogenation and Liquefaction of Coal. Part 2. Effect of Petrographic Composition and Rank of Coal. Tech. Paper 642, 1942, 162 pp. 25 cents. Abs., Oil and Gas Jour., vol. 41, No. 37, Jan. 21, 1943, pp. 40–42, 44, 47.
380. Hirst, L. L., Eisner, Abner, Field, J. H., Cooper, H. M., Abernethy, R. F., and Storch, H. H. Hydrogenation and Liquefaction of Coal. Part 3. Characterization of Assay Oils. Tech. Paper 646, 1942, 27 pp. 10 cents.
381. Storch, H. H., Fisher, C. H., Hawk, C. O., and Eisner, Abner. Hydrogenation and Liquefaction of Coal. Part 4. Effect of Temperature, Catalyst, and Rank of Coal on Rates of Coal-Hydrogenation Reactions. Tech. Paper 654, 1943, 50 pp. 10 cents.
382. Storch, H. H., Hirst, L. L., Fisher, C. H., and Sprunk, G. C. Hydrogenation and Liquefaction of Coal. Part 1. Review of Literature, Description of Experimental Plant, and Liquid-Phase Assays of Some Typical Bituminous, Subbituminous, and Lignitic Coals. Tech. Paper 622, 1941, 110 pp. 20 cents.

CONGRESSIONAL PUBLICATIONS

383. Bureau of Mines. Production of Gasoline from Coal and Other Products. Hearings before a Subcommittee of the Committee on Mines and Mining, House of Representatives, 77th Cong., 2d sess., on the Production of Gasoline, Fuel Oils, Plastics, Rubber, and Other Materials from Coal and Other Products, June 17, 18, 25, and July 15, 1942; statements by A. C. Fieldner, pp. 2–17; and H. H. Storch, pp. 38–44.
384. ——— Synthetic Liquid Fuels. Hearings before a Subcommittee of the Committee on Public Lands and Surveys, U. S. Senate, 78th Cong., 1st sess., on S. 1243, Washington, D. C., August 3–4, 1943; Pittsburgh, Pa., August 6, 1943; Salt Lake City, Utah, August 9, 1943; Sheridan, Wyo., August 11, 1943, 469 pp.; statements by Harold L. Ickes, pp. 3–11; Michael Straus, pp. 280–282, 411–414; R. R. Sayers, pp. 17–27, 180–195, 282–284, 414–420; A. C. Fieldner, pp. 160–178, 318–321, 420–435; W. C. Schroeder, pp. 213–224, 437–439; and H. H. Storch, pp. 195–208, 268–273.

385. Congress, U. S. An Act Authorizing the Construction and Operation of Demonstration Plants to Produce Synthetic Liquid Fuels from Coal, Oil Shale, Agricultural and Forestry Products, and Other Substances, in Order to Aid the Prosecution of the War, to Conserve and Increase the Oil Resources of the Nation, and for Other Purposes. Public Law 290, 78th Cong., 2d sess., chap. 172 (S. 1243), approved April 5, 1944, 2 pp.

386. Fieldner, A. C. Statement on Gasoline Substitutes from Coal and Possibilities of Making Synthetic Gasoline from Coal. Hearings before a Subcommittee of the Committee on Interstate and Foreign Commerce, House of Representatives, 76th Cong., on H. Res. 290 and H. R. 7372, to Promote the Conservation of Petroleum; to Provide for Cooperation with the States in Preventing the Waste of Petroleum; to Create an Office of Petroleum Conservation; to Amend the Act of February 22, 1935, as Amended; and for Other Purposes, 1939, pp. 286–289.

387. ——— Statement on the Production of Liquid Fuels from Coal and Lignite. Hearings before a Subcommittee of the Committee on Public Lands and Surveys of the U. S. Senate, 77th Cong., 2d Sess., Pursuant to S. Res. 53, A Resolution Providing for an Investigation with Respect to the Development of the Mineral Resources of the Public Lands of the United States and Laws Relating Thereto. Part 4. To Encourage the Discovery of Oil and Gas on the Public Domain, Washington, D. C., October 6, 7, 8, 9, 10, and 12, 1942, pp. 1524, 1536–1550.

388. Fieldner, A. C., Davis, J. D., and Storch, H. H. Gasoline Substitutes from Coal. (Chapter in Manufacture and Use of Petroleum Products—a Review of Developments, 1934–38.) Hearings before a Subcommittee of the Committee on Interstate and Foreign Commerce, House of Representatives, 76th Cong., on H. Res. 290 and H. R. 7372, to Promote the Conservation of Petroleum; to Provide for Cooperation with the States in Preventing the Waste of Petroleum; to Create an Office of Petroleum Conservation; to Amend the Act of February 22, 1935, as Amended; and for Other Purposes, 1939, pp. 277–286.

REPORTS OF INVESTIGATIONS

389. Eisner, Abner, Sprunk, G. C., Clarke, Loyal, Fein, M. L., Fischer, C. H., and Storch, H. H. Hydrogenation and Petrography of Some Low-Rank Coals from the Western United States. R. I. 3498, 1940, 21 pp.

390. Hofer, L. J. E. The Preparation and Properties of Metal Carbides with Critical Comment as to Their Significance in the Fischer-Tropsch Synthesis. R. I. 3770, 1944, 39 pp.

INFORMATION CIRCULAR

391. Holliman, W. C. Synthetic Rubber. Its Production from Petroleum, Coal, and Other Materials. I. C. 7242, 1943, 36 pp.

OTHER PUBLICATIONS

392. Eisner, Abner, Fein, M. L., and Fisher, C. H. Neutral Oils from Coal Hydrogenation. Action of Sulfuric Acid. Ind. Eng. Chem., ind. ed., vol. 32, 1940, pp. 1614–1621.

393. Eisner, Abner, Sprunk, G. C., Clarke, Loyal, Fisher, C. H., and Storch, H. H. Hydrogenation of Typical North American Splint Coals. Ind. Eng. Chem., ind. ed., vol. 32, 1940, pp. 73–78.

394. Fieldner, A. C. Outlook for Coal in Supplying Liquid Fuels and Coke. Coal Age, vol. 48, February 1943, pp. 109–111.

395. Fieldner, A. C., and Schroeder, W. C. Oil and Gasoline from Oil Shale and Coal. Ohio State Univ. Eng. Exp. Sta. News, vol. 16, April 1944, pp. 22–27; Fuel in Sci. and Practice, vol. 23, 1944, pp. 34–36.

396. Fisher, C. H., and Eisner, Abner. Tellurium Compounds as Friedel-Crafts Catalysts. The Oxidation of Organic Compounds with Tellurium Dioxide. Jour. Org. Chem., vol. 6, 1941, pp. 169–174.

397. Fisher, C. H., Eisner, Abner, Clarke, Loyal, Fein, M. L., and Storch, H. H. Kinetics of Hydrogen Consumption, Oxygen Removal, and Liquefaction in Coal Hydrogenation. Effect of Rank. II. Fuel in Sci. and Practice, vol. 20, 1941, pp. 5–13.

398. Fisher, C. H., Sprunk, G. C., Eisner, Abner, Fein, M. L., and Storch, H. H. Hydrogenation and Petrography of Lignites, Subbituminous Coals, and Bituminous Coals from North Dakota, Wyoming, Utah, and Montana. Fuel in Sci. and Practice, vol. 19, 1940, pp. 186–195.

399. Fisher, C. H., Sprunk, G. C., Eisner, Abner, Clarke, Loyal, Fein, M. L., and Storch, H. H. Hydrogenation of Anthraxylon (Vitrain) from Peat, Brown Coal, Lignite, Subbituminous Coal, Bituminous Coal and Anthracite. The Effect of Rank in Coal Hydrogenation. Fuel in Sci. and Practice, vol. 19, 1940, pp. 132–138, 162–172.

400. ——— Hydrogenation of Cannel Coals and Their Petrographic Constituents. Fuel in Sci. and Practice, vol. 19, 1940, pp. 84–89, 110–118.

401. ——— Kinetics of Hydrogen Consumption, Oxygen Removal, and Liquefaction in Coal Hydrogenation. Effect of Rank. Fuel in Sci. and Practice, vol. 19, 1940, pp. 13–16, 51–55, 67–69.

402. Hirst, L. L., Boyer, R. L., Eisner, Abner, Pinkel, I. I., and Storch, H. H. Hydrogenation of High-Volatile Bituminous Coals. Summary of Assays of Bituminous Coals, Subbituminous Coals, and Lignites. Ind. Eng. Chem., ind. ed., vol. 33, 1941, pp. 1068–1072.

403. Hirst, L. L., Storch, H. H., Fisher, C. H., and Sprunk, G. C. Hydrogenation of High-Volatile Bituminous Coals. Proximate Analysis and Characterization of Products. Ind. Eng. Chem., ind. ed., vol. 32, 1940, pp. 864–871.

404. ——— Hydrogenation and Petrography of Subbituminous Coals and Lignites. Ind. Eng. Chem., ind. ed., vol. 32, 1940, pp. 1372–1379.

405. Orchin, Milton. Hydrogenation of Anthracene by Tetralin. Jour. Am. Chem. Soc., vol. 66, 1944, pp. 535–538.

406. Storch, H. H. Chemistry of Coal Hydrogenation. Chem. Revs., vol. 29, 1941, pp. 483–499.

407. ——— Contact Catalysis in the Hydrogenation of Coal, Coal Tar, and Oil. 12th Rept. of Committee on Contact Catalysis, John Wiley & Sons, Inc., New York, 1940, pp. 82–92.

408. ——— Hydrogenation. Research and Progress in the Production and Use of Coal, by A. C. Fieldner and W. E. Rice, Nat. Resources Planning Board Tech. Paper 4, 1941, pp. 45–49.

409. ——— (leader of discussion). Hydrogenation of Coal. Round Table Discussion, American Chemical Society 106th Meeting at Pittsburgh. Division of Gas and Fuel Chemistry. Ind. Eng. Chem., ind. ed., vol. 36, 1944, pp. 291–298.

410. Storch, H. H., and Fieldner, A. C. Hydrogenation and Liquefaction of American Coals. Univ. of West Virginia Eng. Exp. Sta. Tech. Bull. 15, Proc. 3d Ann. Coal Conference, Morgantown, W. Va., 1939, pp. 99–133; discussion, pp. 133–137.

411. Storch, H. H., Hawk, C. O., and O'Neill, W. E. Kinetics of Hydrogen Consumption, Oxygen Elimination, and Liquefaction in Coal Hydrogenation. Nature of the Catalytic Reactions. Jour. Am. Chem. Soc., vol. 64, 1942, pp. 230–236.

412. Storch, H. H., Fisher, C. H., Eisner, Abner, and Clarke, Loyal. Hydrogenation of a Pittsburgh Seam Coal. Kinetics of Hydrogen Consumption, Oxygen Removal, and Liquefaction. Ind. Eng. Chem., Ind. ed., vol. 32, 1940, pp. 346–353.

413. Storch, H. H., Hirst, L. L., Fisher, C. H., Work, H. K., and Wagner, F. W. Hydrogenation of High-Temperature Tar from Byproduct Coke Ovens. Ind. Eng. Chem., ind. ed., vol. 33, 1941, pp. 264–274.

13. COKE

REPORTS OF INVESTIGATIONS

414. Auvil, H. S., Davis, J. D., and McCartney, J. T. Shrinkage of Coke. R. I. 3539, 1940, 17 pp.

415. Reynolds, D. A., and Holmes, C. R. Physical Properties of Cokes from Bureau of Mines—American Gas Association Tests at 800° and 900°C. R. I. 3650, 1942, 14 pp. (Out of print.)

416. Selvig, W. A., Ode, W. H., and Gibson, F. H. Coke from Low-Ash Appalachian Coals for Carbon Electrodes in Aluminum Industry, with a Chapter on Comparison of Results Obtained by Trent Process for Cleaning Coal with Those by Float-and-Sink Methods, by Joseph D. Davis. R. I. 3731. 1943, 22 pp.

417. Zane, R. E., and Yancey, H. F. Combustibility of Coke in Air. R. I. 3499, 1940, 8 pp.; abs., Coll. Guard., vol. 161, 1940, p. 73.

OTHER PUBLICATION

418. Davis, J. D. Coke. Marks' Mechanical Engineers' Handbook, McGraw-Hill Book Co., Inc., New York, 4th ed., 1941, pp. 799–800.

14. GAS

OTHER PUBLICATION

419. Huff, W. J. Gaseous Fuels. Chemical Engineers' Handbook, McGraw-Hill Book Co., Inc., New York, 2d ed., 1941, pp. 2359–2430.

15. TAR, LIGHT OILS, AND OTHER BYPRODUCTS

REPORTS OF INVESTIGATIONS

420. Holmes, C. R., Wilson, J. E., and Davis, J. D. Comparative Yields of Light Oil, Tar, and Constituents from Carbonization Tests at 800°, 900°, and 1,000° C. R. I. 3695, 1943, 12 pp.

421. Rockenbach, L. P., and Reynolds, D. A. Improved Method of Determining Benzene in Medium-Temperature Light Oils. R. I. 3619, 1942, 5 pp.

INFORMATION CIRCULAR

422. Schallis, A. H. Nonmetallic Minerals Needed for National Defense. 3. Nitrates. I. C. 7170, 1941, 6 pp.

16. COMBUSTION

OTHER PUBLICATION

423. Nicholls, P., and Barkley, J. F. Combustion. Research and Progress in the Production and Use of Coal, by A. C. Fieldner and W. E. Rice, Nat. Resources Planning Board Tech. Paper 4, 1941, pp. 20–27.

A. INDUSTRIAL

TECHNICAL PAPER

424. Cohen, P., and Reid, W. T. The Flow of Coal-Ash Slag on Furnace Walls. Tech. Paper 663, 1944, 22 pp. 10 cents.

OTHER PUBLICATIONS

425. Barkley, J. F. Discussion of "The Combustion of Barley Anthracite," by Allen J. Johnson. Trans. Am. Soc. Mech. Eng., vol. 66, 1944, p. 406.

426. ——— Prevent Fuel Waste for War. Power Plant Eng., vol. 37, April 1943, p. 75; Ind. and Power, vol. 44, April 1943, pp. 140–141; Supervision, vol. 5, April 1943, p. 18; Coal Heat, vol. 43, April 1943, p. 10; Combustion, vol. 14, April 1943, p. 47; Coal Herald—Stoker and Air Conditioner, vol. 17, April 1943, p. 19; Heating and Ventilating, vol. 40, May 1943, p. 40; Southern Power and Ind., vol. 61, May 1943, p. 100; Factory Management and Maintenance, vol. 101, July 1943, p. 164; Plibrico Firebox, July–August 1943, p. 11.

427. Barkley, J. F., and Seymour, William. Increasing Use of Small Anthracite Sizes. Abs., Combustion, vol. 16, July 1944, pp. 40–41; Coke and Smokeless-Fuel Age, vol. 6, December 1944, p. 240. (Abstracts of War Problem of Increasing Utilization of Small Anthracite. Mech. Eng., vol. 67, 1945, pp. 457–462.)

428. Barkley, J. F., Burdick, L. R., and Hersberger, A. B. "Colloidal" Fuel Substituted for Oil Fuel. Nat. Petrol. News, Tech. Sec., vol. 35, No. 27, 1943, pp. R–304–R–306; Steel, vol. 113, No. 2, July 1943, pp. 98–99, 137–138; Coal Age, vol. 48, July 1943, pp. 51–53; Power, vol. 87, August 1943, pp. 72–73, 144, 146, 148, 150; abs., Steam Eng. (England), vol. 13, 1944, pp. 104–107.

429. Barkley, J. F., Hersberger, A. B., and Burdick, L. R. Laboratory and Field Tests on Coal-in-Oil Fuels. Trans. Am. Soc. Mech. Eng., vol. 66, 1944, pp. 185–196; discussion, pp. 196–198; abs., Power Plant Eng., vol. 48, January 1944, pp. 82–84, 132, 134, 136, 138; abs., Power, vol. 87, December 1943, pp. 178, 180, 182; abs., Steam Eng. (England), vol. 13, 1944, pp. 259–263.

430. Bureau of Mines. Fuel Efficiency Program. Smoke (Official Bull., Smoke Prevention Assoc.), vol. 11, June 1944, 2 pp.

431. ——— Guide for Checking Fuel Waste. Combustion, vol. 16, August 1944, pp. 52–53.

432. Cheasley, T. C. Work of the National Fuel Efficiency Program. Min. Cong. Jour., vol. 30, December 1944, pp. 26–28.

433. Reid, W. T. Discussion of Distribution of Heat Absorption and Factors Affecting Performance of Twin Branch 2,500-p. s. i. Boiler, by F. G. Ely and L. B. Schueler. Furnace Performance Factors, pub. by Am. Soc. Mech. Eng., New York, May 1944, pp. 30–31.

434. ——— An Electronic-Contacting Galvanometer for Temperature Control. Temperature, Its Measurement and Control in Science and Industry, Reinhold Pub. Co., New York, chap. 7, 1941, pp. 611–616.

435. Reid, W. T., and Cohen, P. Factors Affecting Thickness of Coal-Ash Slag on Furnance-Wall Tubes. Trans. Am. Soc. Mech. Eng., vol. 66, 1944, pp. 685–690; Combustion, vol. 16, July 1944, pp. 42–44.

436. ——— The Flow Characteristics of Coal-Ash Slags in the Solidification Range. Furnace Performance Factors, pub. by Am. Soc. Mech. Eng., New York, May 1944, pp. 83–97.

437. Reid, W. T., and Corey, R. C. Errors in Temperature Measurements by Radiometric Methods. Combustion, vol. 15, February 1944, pp. 30–34.

438. Schroeder, W. C. Use of Mixtures of Oil and Coal in Boiler Furnaces. Mech. Eng., vol. 64, 1942, pp. 793–798, 804; discussion, vol. 65, 1943, pp. 278–284; abs., Steam Eng. (England), vol. 13, 1943, pp. 3–5.

B. DOMESTIC

HANDBOOK

439. Barkley, J. F. Questions and Answers for the Home Fireman. Handbook (Revised), 1940, 34 pp. 10 cents.

REPORT OF INVESTIGATIONS

440. Parry, V. F., and Segur, R. D. Performance of Subbituminous Coal in a Typical Underfeed Domestic Stoker. R. I. 3557, 1941, 18 pp.

INFORMATION CIRCULARS

441. Barkley, J. F. How to Save Fuel at Home. I. C. 7229, 1942, 5 pp.; Coal Heat, vol. 43, February 1943, pp. 36–37.

442. Bowles, Oliver. Home Insulation with Mineral Products. Conservation of Fuel for War. I. C. 7220, 1942, 11 pp.

443. Reid, W. T. Supplementing Anthracite with Other Fuels for Home Heating. I. C. 7260, 1943, 22 pp.

OTHER PUBLICATION

444. Yancey, H. F., Johnson, K. A., and Cordiner, J. F., Jr. Burning Characteristics of Washington Coals on Domestic Overfeed and Underfeed Stokers. Trans. Am. Soc. Mech. Eng., vol. 63, 1941, pp. 293–296.

D. BOILER-WATER CONDITIONING

BULLETIN

445. Schroeder, W. C., and Berk, A. A. Intercrystalline Cracking of Boiler Steel and Its Prevention. Bull. 443, 1941, 85 pp. 15 cents.

HANDBOOK

446. Barkley, J. F. Questions and Answers on Boiler Feed-Water Conditioning. (Revised) Handbook 3, 1943, 121 pp. 20 cents. (In part) Coal Heat, vol. 46, October 1944, pp. 50, 53–54.

REPORTS OF INVESTIGATIONS

447. Berk, A. A. Observations on the Use of Cyclohexylamine in Steam-Heating Systems. R. I. 3754, 1944, 42 pp.; Proc. Nat. Dist. Heating Assoc., vol. 35, 1944, pp. 172–189; discussion, 189–193; abs., Prevention of Corrosion in Steam-Heating Systems by Cyclohexylamine, Combustion, vol. 16, August 1944, p. 51.
448. Broderick, S. J. Carbonaceous Cation and Anion Exchangers in Water Treatment. R. I. 3571, 1941, 14 pp.
449. ——— Softening Water with Nonmetallic Minerals. R. I. 3578, 1941, 18 pp. (Out of print.)
450. Broderick, S. J., and Bogard, Dale. Carbonaceous Cation Exchangers from Coal and Coal Refuse. R. I. 3559, 1941, 17 pp.

Other Publications

451. Berk, A. A., and Schroeder, W. C. Determination of Tannin Substances in Boiler Waters. Ind. Eng. Chem., anal. ed., vol. 14, 1942, pp. 456–459.
452. ——— A Practical Way to Prevent Embrittlement Cracking. Trans. Am. Soc. Mech. Eng., vol. 65, 1943, pp. 701–711; Jour. Inst. Fuel (London), vol. 17, December 1943, pp. 44–49.
453. Schroeder, W. C., and Berk, A. A. Summary of Papers Composing the Symposium on Embrittlement. Trans. Am. Soc. Mech. Eng., vol. 64, 1942, pp. 427–430; authors' closure, p. 444.
454. Schroeder, W. C., Berk, A. A., and O'Brien, R. A. Embrittlement Detector. Abs., Combustion, vol. 12, August 1940, pp. 19–21.
455 Schroeder, W. C., Berk, A. A., and Stoddard, C. K. Embrittlement Detector Testing on Boilers. Power Plant Eng., vol. 45, August 1941, pp. 76–79.

17. SMOKE ABATEMENT

Other Publications

456. Barkley, J. F. Dust Removal from Chimney Gases. Abs., Steam Eng. (England), vol. 9, 1940, pp. 235–238. (Abs. of R. I. 3472, 1939, 10 pp.)
457. ——— How Smoke Regulation Departments Can Assist in the War Project of the Control, Allotment, and Conservation of the Nation's Coal. Solid Fuel Eng., vol. 1, August 1942, pp. 6–7; Proc. 36th Ann. Convention, Smoke Prevention Assoc., 1942, pp. 125–127.
458. ——— Methods Employed in Reducing Fly-Ash Emission from Chimneys. Smoke Prevention Assoc., Manual of Ordinances and Requirements, 1940, pp. 84–91; 1941, pp. 6, 8, 10, 12, 14, 16, 18, 20.
459. ——— Some Fundamentals of Smoke Abatement. Smoke Prevention Assoc., Manual of Ordinances and Requirements, 1940, pp. 116–118, 120–122.
460. ——— Standard Methods for the Measurement of the Extent of Atmospheric Pollution. Proc. 35th Ann. Convention, Smoke Prevention Assoc., 1941, pp. 98–100; Smoke Prevention Assoc., Manual of Ordinances and Requirements, 1941, pp. 120–122.
461. Barkley, J. F., and Burdick, L. R. Bibliographies of Papers on the Determination of Dust Fall, Atmospheric Dusts, and Atmospheric Sulfur Dioxide. Smoke Prevention Assoc., Manual of Ordinances and Requirements, 1941, pp. 169–172.

18. ECONOMICS AND STATISTICS

On July 1, 1937, the statistical studies of production and distribution of bituminous coal, formerly conducted by the Bureau of Mines, were taken over by the National Bituminous Coal Commission in accordance with the Bituminous-Coal Act of 1937. The Commission was abolished by the President's Organization Plan No. 2, dated May 9, 1939 (Reorganization Act of 1939), and the functions of the Commission were transferred to the United States Department of the Interior. On July 24, 1939, the Secretary of the Interior created the Bituminous Coal Division within the Department. From July 1937 to May 13, 1944, the National Bituminous Coal Commission and subsequently the Bituminous Coal Division and the Solid Fuels Administration for War continued the publication of the Weekly Coal Report, the Monthly Coal Distribution Report, and the Monthly Preliminary Estimates of Production of Bituminous Coal—all formerly published by the Bureau of Mines. Since May 14, 1944, these reports have been published by the Bureau of Mines. Brief descriptions of the data contained in these reports are included in the publications listed under Periodical Reports.

The Bureau of Mines continued to collect and publish data on Pennsylvania anthracite, lignite, coke, fuel briquets and packaged fuel, and peat. Data on anthracite and semianthracite outside of Pennsylvania are included in Bituminous Coal Division statistics for Virginia.

In addition, special war work on Pennsylvania anthracite, lignite, and coke was conducted as follows:

Pennsylvania Anthracite: Canvasses beginning April 1, 1942, were conducted by the Bureau of Mines for the Solid Fuels Administration for War to form a basis for an equitable distribution program of the available supplies of anthracite during the period of fuel shortages occasioned by the war. Results of the canvasses have been published as Solid Fuels Distribution Reports, SFD 1, parts I–VI, with a supplement, and SFD 2, parts I–V; all may be obtained free of charge upon application to the Bureau of Mines.

Coke: Capacity of byproduct and beehive coke ovens as of December 31, 1940; beehive- and byproduct-coke prices and prices of coke byproducts; requirements, sources, and stocks of coking coal; shipments of reclaimed beehive coke; coke and byproducts produced from coal-gas retorts; consumption of coke at blast-furnace plants; consumption of foundry coke in 1941; and monthly distribution of byproduct, beehive, and reclaimed coke for domestic use, and ultimate destinations of export shipments of coke by sizes and uses. Summaries of canvasses conducted at the request of the War Production Board, Office of Price Administration, and Solid Fuels Administration for War are included in the Coke chapters of the Minerals Yearbook series.

PERIODICAL REPORTS

Weekly Coal Report. This report covers the following subjects: Latest weekly and monthly estimates of production of bituminous coal, by States; weekly statistics of certain major features of coal distribution, including shipments to the Great Lakes, to tidewater, and to New England; and monthly statistics of industrial stocks and consumption of coal and coke.

The Weekly Coal Report was begun July 21, 1917; Nos. 1 to 415 were issued by the Geological Survey; Nos. 416 (July 3, 1925) to 1041 (June 26, 1937) were issued by the Bureau of Mines; Nos. 1042 (July 3, 1937) to 1146 (June 30, 1939) were issued by the National Bituminous Coal Commission; Nos. 1147 (July 8, 1939) to 1361 (August 21, 1943) were issued by the Bituminous Coal Division; Nos. 1362 (August 28, 1943) to 1400 (May 20, 1944) were issued by the Solid Fuels Administration for War; and beginning with No. 1401 (May 27, 1944) the report has been published by the Bureau of Mines.

The Coal-Stock Report, with charts, was first issued April 24, 1919, by the Geological Survey and then quarterly by the Bureau of Mines from July 1, 1925, to July 1, 1932, when it was discontinued as a separate report and included upon a monthly basis in the Weekly Coal Report. It shows the total tonnage of bituminous coal in the hands of consumers estimated from reports furnished by a selected list of approximately 10,000 large consumers; stocks in terms of days' supply classified by types of consumers and districts of the country and includes detailed figures of reserves on the upper Lake docks; and the monthly consumption of bituminous coal. Reports are supplied free of charge upon application to the Bureau of Mines.

WEEKLY ANTHRACITE-BEEHIVE-COKE REPORT. This report covers the following Pennsylvania anthracite data: Production estimates (weekly and monthly); distribution (daily and weekly carloadings, weekly shipments via Lake Erie, and to New England), all rail, monthly receipts, and deliveries (reloadings) at Lakes Superior and Michigan and monthly receipts in New England by tide and rail; industrial consumption monthly (by railroads, electric-power utilities, and other industrial, retail dealers, and at upper Lake docks); days' supply on hand at end of month at representative retail yards and representative consumers; prices at mines; wholesale prices; average weekly earnings; and monthly employment and pay rolls. Also included are beehive data on weekly carloadings and weekly production by regions.

Advance summaries on the annual production and distribution of Pennsylvania anthracite, lignite, fuel briquets and packaged fuel, and peat (based upon detailed reports collected from each producer at the close of the calendar year) were issued for 1940 and 1941 as annual supplements to the Weekly Anthracite-Beehive-Coke Reports and the Monthly Coke Reports. Beginning in 1942 the summaries are published as Mineral Market Reports as soon as the compilations are completed. Detailed tables and analyses are published later in chapters on these subjects in the Minerals Yearbook. Reports and supplements are supplied free of charge upon application to the Bureau of Mines.

PRELIMINARY ESTIMATES OF PRODUCTION OF BITUMINOUS COAL AND LIGNITE. One-page release gives preliminary figures of production of bituminous coal and lignite for the preceding month for the use of business statisticians, editors, and others who desire monthly data. This is mailed on the fifth day after the close of the month covered. Beginning November 5, 1928, the Bureau of Mines published Preliminary Estimates of Production of Coal and Beehive Coke for the Month of —. From July 1937 to June 1939 the report was published by the National Bituminous Coal Commission; from July 1939 to August 1943, by the Bituminous Coal Division; from September 1943 to May 1944, by the Solid Fuels Administration for War; and since June 1944, by the Bureau of Mines. The reports are supplied free of charge on application to the Bureau of Mines.

PRELIMINARY ESTIMATES OF PRODUCTION OF PENNSYLVANIA ANTHRACITE AND OF BEEHIVE COKE FOR THE MONTH OF —. One-page release gives preliminary figures of production of Pennsylvania anthracite and of beehive coke for the preceding month for the use of statisticians, editors, and others who desire monthly data. This is usually mailed on the fifth day after the close of the month covered. The publication of the production figures of Pennsylvania anthracite and of beehive coke as a separate report was begun in July 1937; previous to then it was included in Preliminary Estimates of Production of Bituminous Coal. Reports are supplied free upon application to the Bureau of Mines.

MONTHLY COKE REPORT (with chart). The following subjects are covered: Production of byproducts and beehive coke, pig iron, ammonia, crude tar, creosote oil, and naphthalene; production of coke by regions; production, percent of capacity, and stocks of byproduct coke at plants associated with iron furnaces and at merchant plants; coal carbonized during month and coal stocks at end of month at byproduct-coke plants, and coal carbonized during month in beehive ovens; shipments of byproduct and beehive coke by cars and barges and shipments of reclaimed beehive coke; prices of byproduct and beehive coke, sulfate of ammonia, benzol, toluol, and naphthalene flakes; consumption of byproduct and beehive coke at producing plants and shipments by cars, barges, and trucks, by major uses; sales, values, and stocks of ammonium sulfate, ammonia liquor, naphthalene, tar, and creosote oil. These reports are available free of charge upon application to the Bureau of Mines.

Advance summaries of preliminary and final annual statistics (based upon detailed reports collected from each producer at the close of the calendar year) were issued in 1940 and 1941 as supplements to the Monthly Coke Report. Beginning with 1942 these data have been published as Mineral Market Reports. Detailed tables and analyses are later published in the Coke chapters of the Minerals Yearbook. The supplements and Mineral Market Reports containing these annual statistics are supplied free of charge upon application to the Bureau of Mines.

DISTRIBUTION OF COAL SHIPMENTS. This report, with charts, was first issued August 20, 1931. From July 1937 to June 1939 the report was published by the National Bituminous Coal Commission; from July 1939 to August 1943 by the Bituminous Coal Division; from September 1943 to May 1944 by the Solid Fuels Administration for War; and since June 1944 by the Bureau of Mines. It summarizes the distribution of bituminous-coal shipments by water and rail. Reports are supplied free of charge upon application to the Bureau of Mines.

DIRECTORIES. A list of active byproducts and beehive-coke operations, fuel-briquetting and packaged-fuel operations, and peat producers, prepared annually, is available free of charge upon application to the Bureau of Mines. A list of manufacturers of equipment used in the manufacture of fuel briquets and packaged fuel and in the packaging of these fuels is also issued annually. In addition, a directory of river-coal operators dredging anthracite from streams draining the Pennsylvania anthracite regions was issued June 1942 (Appendix A of I. C. 7213) and is available free of charge upon application to the Bureau of Mines.

INTERNATIONAL COAL TRADE. This is a monthly bulletin. The first issue, titled "Overseas Export Situation," was published by the Bureau of Foreign and Domestic Commerce, October 17, 1923, changed to The International Coal Trade Situation on February 13, 1927, and to International Coal Trade February 27, 1933. Since July 1935 it has been a publication of the Bureau of Mines, summarizing latest information on the international coal trade. From time to time special articles are included on the reserves, production, and consumption of coal, oil, and water power in the various countries of the world. Distribution to the public was suspended with the June 1942 issue (vol. 11, No. 5) until the May 1945 issue (vol. 14, No. 5) and issued as a confidential report to a restricted mailing list during that time. Nonrestricted reports are supplied free of charge upon application to the Bureau of Mines.

MINERAL MARKET REPORTS. Reports on bituminous coal and lignite, containing production data by minimum price areas and production districts, as set forth in the Bituminous Coal Act of 1937, in addition to data included in Bituminous Coal and Lignite chapters in the Minerals Yearbook, have been published as Mineral Market Reports beginning in 1942. These data formerly were published by the Bituminous Coal Division as Bituminous Coal Tables 1938–39 (issued October 1940 and including data on lignite) and Bituminous and Lignite Coal Tables 1939, 1940, and 1941 (issued January 1943). Copies of these tables and reports are supplied free of charge upon application to the Bureau of Mines.

Advance annual summaries of production and distribution of Pennsylvania anthracite, coke, fuel briquets and packaged fuel, and peat (based upon detailed reports collected from each producer at the close of a calendar year) have been published as Mineral Market Reports beginning in 1942. These data were published prior to 1942 as supplements to the Weekly Anthracite and Beehive-Coke Report and the Monthly Coke Report. These supplements and reports are available free of charge upon application to the Bureau of Mines.

COAL-MINE FATALITIES. This monthly report, first issued in 1922, describes the causes of fatal accidents in anthracite and bituminous-coal mines and the relationship between production and accidents. The reports are supplied free of charge upon application to the Bureau of Mines.

HEALTH AND SAFETY STATISTICS. These reports include selected special studies relating to the promotion of safety in mining operations and the statistical record of accidents in and about Pennsylvania anthracite mines and bituminous-coal mines (including lignite) of the United States. In addition to the detailed statistics on mine accidents and accident rates, the reports list data on the average number of men working daily, the average days, the man-days, and the man-hours worked, and the number and causes of fatal and nonfatal accidents. These summaries are available for 1938, 1939, 1940, 1941, and 1942 and may be secured free upon application to the Bureau of Mines.

BULLETINS

462. ADAMS, W. W., AND GEYER, L. E. Coal-Mine Accidents in the United States, 1941. Bull. 456, 1944, 131 pp. 20 cents.
463. ———— Coal-Mine Accidents in the United States, 1942. Bull. 462, 1944. 140 pp. 20 cents.
464. ADAMS, W. W., GEYER, L. E., AND PARRY, M. G. Coal-Mine Accidents in the United States, 1937. Bull. 430, 1940, 137 pp. 15 cents.
465. ———— Coal-Mine Accidents in the United States, 1938. Bull. 437, 1941. 127 pp. 15 cents.
466. ———— Coal-Mine Accidents in the United States, 1939. Bull. 444, 1942. 123 pp. 20 cents.
467. ———— Coal-Mine Accidents in the United States, 1940. Bull. 448, 1942. 134 pp. 20 cents.

TECHNICAL PAPERS

468. ADAMS, W. W., AND WRENN, V. E. Coke-Oven Accidents in the United States During the Calendar Year 1938. Tech. Paper 614, 1940, 16 pp. 5 cents.
469. ———— Coke-Oven Accidents in the United States During the Calendar Year 1939. Tech. Paper 623, 1940. 17 pp. 5 cents.
470. ———— Coke-Oven Accidents in the United States During the Calendar Year 1940. Tech. Paper 640, 1941. 19 pp. 5 cents.
471. ———— Coke-Oven Accidents in the United States, Calendar Year 1941. Tech. Paper 651, 1943. 19 pp. 10 cents.
472. ———— Coke-Oven Accidents in the United States, Calendar Year 1942. Tech. Paper 660, 1944. 21 pp. 10 cents.
473. ———— Production of Industrial Explosives in the United States During the Calendar Year 1941. Tech. Paper 647, 1942. 30 pp. 10 cents.
474. ———— Production of Industrial Explosives in the United States During the Calendar Year 1942. Tech. Paper 658, 1944. 24 pp. 10 cents.
475. ———— Production of Industrial Explosives in the United States During the Calendar Year 1943. Tech. Paper 665, 1944, 26 pp. 10 cents.
476. ADAMS, W. W., WRENN, V. E., AND HORTON, L. S. Production of Explosives in the United States During the Calendar Year 1939. Tech. Paper 627, 1940. 30 pp. 5 cents.
477. ———— Production of Explosives in the United States During the Calendar Year 1940. Tech. Paper 636, 1942. 30 pp. 10 cents.

YEARBOOK

478. ADAMS, W. W. Employment and Accidents in the Mineral Industries. Minerals Yearbook, 1943, pp. 1590–1601. 5 cents.
479. CORGAN, J. A. Peat. Minerals Yearbook, 1943, pp. 1057–1060. 5 cents. (The subject, peat, was covered in 1894 and 1904–24, inclusive, by Mineral Resources of the United States, which was started by the Geological Survey. Peat has been the subject of a chapter in Minerals Yearbook, compiled by the Bureau of Mines annually since 1935.)
480. CORGAN, J. A., BUCH, J. W., AND COOKE, M. I. Pennsylvania Anthracite. Minerals Yearbook, 1943, pp. 944–981. 10 cents. (See note under item 483.).
481. DE CARLO, J. A., OTERO, M. M., AND BUCH, J. W. Coke and Byproducts. Minerals Yearbook, 1944, pp. 982–1039. 15 cents. (Coke has been the subject of a special chapter in Mineral Resources of the United States since it was started by the Geological Survey in 1882 and continued by that Bureau until 1924, after which the annual was compiled by the Bureau of Mines. It bore that name until 1932–33, when the title was changed to Minerals Yearbook and so continued.)

482. GOODMAN, G. S. Fuel Briquets and Packaged Fuel. Minerals Yearbook, 1943, pp. 1040–1056. 10 cents. (Briquetting has been the subject of a special chapter in Mineral Resources of the United States, prepared by the Geological Survey, since 1907 and was continued by that Bureau until 1924, after which the annual was compiled by the Bureau of Mines. It bore that name until 1932–33, when the title was changed to Minerals Yearbook and so continued.)
483. YOUNG, W. H., ANDERSON, R. L., AND ISAAC, L. H. Bituminous Coal and Lignite. Minerals Yearbook, 1943, pp. 832–943. 15 cents. (Coal has been the subject of a special chapter in Mineral Resources of the United States since it was started by the Geological Survey in 1882 and was continued by that Bureau until 1924, after which the annual was compiled by the Bureau of Mines. It bore that name until 1932–33, when the title was changed to Minerals Yearbook and so continued. Bituminous Coal (including Lignite) and Pennsylvania Anthracite were covered by separate chapters beginning in 1938.)

HEALTH AND SAFETY STATISTICS

484. ADAMS, W. W. Increasing Use of Rock Dust as a Preventive of Explosions at Bituminous-Coal Mines. H. S. S. 321, 1943. 2 pp.
485. ———— Monthly Trend of Employment at Bituminous-Coal Mines in the United States During 1943. H. S. S. 341, 1944. 4 pp.
486. BUREAU OF MINES. More Than 78 Percent of Bituminous Coal Produced in Mines Using Permissible Explosives. H. S. S. 322, 1943. 2 pp.
487. ———— Preliminary Survey of Bituminous-Coal-Mine Occupations on a Typical Workday in 1940. H. S. S. 290, 1941. 3 pp.
488. GEYER, L. E. Employment and Accidents at Coal Mines in the United States, 1941. H. S. S. 309, 1943. 11 pp.
489. ———— Employment and Accidents at Coal Mines in the United States, 1942. H. S. S. 333, 1944, 9 pp.
490. GEYER, L. E. AND ADAMS, W. W. Rock Dust Used in Bituminous-Coal Mines in 1941 (with Summary Data Covering 1930–41). H. S. S. 323, 1943, 10 pp.
491. GEYER, L. E., AND PARRY, M. G. Employment and Accidents at Coal Mines in the United States, 1938. H. S. S. 279, 1940, 7 pp.
492. ———— Employment and Accidents at Coal Mines in the United States, 1939. H. S. S. 285, 1941, 6 pp.
493. ———— Employment and Accidents at Coal Mines in the United States, 1940. H. S. S. 297, 1942, 19 pp.

REPORTS OF INVESTIGATIONS

494. ADAMS, W. W. Use of Rock Dust in Bituminous-Coal Mines, 1930-38 (A Statistical Survey). R. I. 3543, 1940, 11 pp.
495. ADAMS, W. W., AND LAWRENCE, T. D. National Safety Competition of 1939. R. I. 3526, 1940, 36 pp.
496. ———— National Safety Competition of 1940. R. I. 3581, 1941, 38 pp.
497. ———— National Safety Competition of 1941. R. I. 3653, 1942, 43 pp.
498. ———— National Safety Competition of 1942. R. I. 3723, 1943, 44 pp.
499. ———— National Safety Competition of 1943. R. I. 3771, 1944, 41 pp.
500. HOPKINS, G. R. Survey of Fuel Consumption at Refineries in 1939. R. I. 3554, 1941, 5 pp.
501. ———— Survey of Fuel Consumption at Refineries in 1940. R. I. 3607, 1942, 6 pp.
502. ———— Survey of Fuel Consumption at Refineries in 1941. R. I. 3703, 1943, 4 pp.

INFORMATION CIRCULAR

503. BRADLEY, J. R. Coal, Petroleum, Natural Gas, and Electricity in the United States, 1929–40. I. C. 7189, 1941, 26 pp.

OTHER PUBLICATIONS

504. Bradley, J. R. Coke. Nat. Year Book (Supplement to Nat. Encyclopedia, 1939), P. F. Collier & Son Corp., New York, 1940, pp. 157–158.

505. ——— Power: The Importance of Coal, Oil, and Water in This Modern Age of Mechanization. South African Min. and Eng. Jour. (Johannesburg, Transvaal), vol. 51, part II, 1940, pp. 67–71.

506. ——— Shifting Channels of the Export Coal Trade. Black Diamond, vol. 104, No. 12, 1940, pp. 11–14.

507. ——— The United States Coal Industry. Iron and Coal Trades Rev. (England), vol. 140, 1940, pp. 154–155.

508. ——— United States Coal Industry in 1940. Defense Activity Increases Demand for Industrial Coal, Exports Up Sharply. Iron and Coal Trades Rev. (England), vol. 142, 1941, p. 296.

509. ——— World Production of Coal. Nat. Year Book (Supplement to Nat. Encyclopedia, 1939), P. F. Collier & Son Corp., New York, 1940, pp. 154–155.

510. Bradley, J. R., and van Siclen, M. Anthracite Output Increases, But Prices Unfavorable. Min. Cong. Jour., vol. 26, February 1940, pp. 21–23.

511. Corgan, J. A. Anthracite Strip Exceeds 9 Million Tons. Mechanization, vol. 8, May 1944, pp. 51–54.

512. Fraser, Thomas, Tryon, F. G., Gallagher, J. J., and van Siclen, M. Mechanization Sales Increase More Than Output with Rises in Both Loaders and Conveyors. Coal Age, vol. 45, February 1940, pp. 63–65. Sales of Mechanical Loading Equipment for Use in Coal Mines in 1939. Min. Cong. Jour., vol. 26, February 1940, pp. 23–27.

513. Shore, F. M., and Corgan, J. A. The Anthracite Industry in 1940. Min. Cong. Jour., vol. 27, February 1941, pp. 20–22.

514. Young, W. H., Anderson, R. L., Lamb, G. A., and Buch, J. W. Mechanical Equipment Shows Sales Drop While Tonnage Rises. Coal Age, vol. 48, February 1943, pp. 86–88. War Conditions Influence Sales of Coal Mining Equipment in 1942. Min. Cong. Jour., vol. 29, February 1943, pp. 68–70. 1942 Sales of Loading Equipment. Mechanization, vol. 7, February 1943, pp. 53–54.

515. ——— Mechanical-Equipment Sales Activity. Coal Age, vol. 49, February 1944, pp. 72–75. Sales of Mechanical Loading and Cleaning Equipment for Coal Mines in 1943. Min. Cong. Jour., vol. 30, February 1944, pp. 45–47. 1943 Sales of Loading Equipment. Mechanization, vol. 8, February 1944, p. 44.

516. Young, W. H., Anderson, R. L., Lamb, G. A., and Shore, F. M. Mechanical Loading and Cleaning Capacity Up in 1940; Conveyor Equipment Hits New High in Sales. Coal Age, vol. 46, February 1941, pp. 59–61. Sales of Mechanical Loading and Cleaning Equipment for Use in Coal Mines in 1940. Min. Cong. Jour., vol. 27, February 1941, pp. 23–25.

517. ——— Mechanical Mining and Cleaning Capacity Rise in 1941; Loader and Conveyor Sales Hit New High. Coal Age, vol. 47, February 1942, pp. 66–68. Sales of Mechanical Loading and Cleaning Equipment for Use in Coal Mines in 1941. Min. Cong. Jour., vol. 28, February 1942, pp. 22–25. 1941 Sales of Loading Equipment. Mechanization, vol. 6, February 1942, p. 52.

19. MOTION-PICTURE FILMS

Motion-picture films of the Bureau of Mines, listed below, are loaned to educational institutions, industries conducting training classes, engineering and scientific societies, civic and business associations, and other responsible organizations. The films depict phases of coal mining and related subjects and are produced and circulated under the direction of the Office of Mineral Reports, Bureau of Mines, Washington 25, D. C. The main distribution center for the films is the Bureau of Mines Experiment Station, 4800 Forbes Street, Pittsburgh 13, Pa., where a complete library of all pictures is maintained and where requests for loans of films or further information should be addressed to Louis F. Perry, Graphic Services Section.

The list includes silent types of 16- and 35-millimeter widths. The 16-millimeter is designated by ▲ after the title, and ● indicates 35-millimeter films. It is important when requesting a loan to specify the width of film as well as the film number which is given beside the title.

The approximate shipping weight of silent films is as follows:

	16-millimeter	*35-millimeter*
1 reel	4 lb.	13 lb.
2 reels	5½ lb.	19 lb.
3 reels	7½ lb.	26 lb.
4 reels	9½ lb.	32 lb.

The cost of transportation may be ascertained from your local express or post office.

FILMS

518. Bureau of Mines and the Linde Air Products Co. Modern Metal Working with the Oxyacetylene Flame (161). ▲ ●

Reel 1 illustrates how acetylene is produced by chemical action of water and calcium carbide. Depicts production of oxyacetylene flame by burning oxygen and acetylene in a specially designed blowpipe. Animated photography explains construction and operation of the oxyacetylene equipment and operation of oxygen and acetylene regulators. Shows widely used injector-type blowpipe; use of different welding heads for various welding conditions; and use of special goggles to protect operator.

Reel 2 shows oxyacetylene process in use on a steel construction job; in repairing automobile fenders; laying oil pipe lines; pipe installations; welding joints in stands and in automobile bodies. Illustrates value of oxyacetylene welding in repairing base of huge press, lawn mower, and plowshare. Shows specimen under tensile test with break occurring outside the weld. Reel ends with views showing oxyacetylene cutting scrap steel and risers from castings; production of special shapes by templet; and severing steel several feet thick with oxygen lance.

519. Bureau of Mines and the United States Steel Corp. The Making and Shaping of Steel—Raw Materials (170). ▲

Shows open-pit iron mining with steam shovel, crushing ore, and loading into cars. Pictures underground mining—mine shaft, drilling face, blasting, crushing and sampling iron ore, transporting it to docks, and loading and unloading lake steamers. Shows mining of limestone, essential in the production of pig iron: Loading stone in mine with shovel, haulage to rotary dump, crushing, screening and loading at tipple. Depicts making of coal into coke, an essential raw material in transforming iron ore into iron; charging and pushing coke ovens, coarse screening, and loading of railroad car from belt.

Raw materials (iron ore, limestone, and coke) are assembled at blast furnace where smelting operation reduces them to molten iron and slag. Shows operation of blast furnace by means of animated drawings. Reel ends with molten iron being transported to another shop for refining into steel.

520. Bureau of Mines and the Westinghouse Electric & Manufacturing Co. "Wildwood," A 100-Percent-Mechanized Mine (142). ▲ The story of a 100-percent-mechanized Pennsylvania coal mine. All electrical apparatus used at the working face is approved as "permissible" by the Bureau of Mines.

Reel 1 pictures fireboss testing for explosive gas by observing flame of safety lamp and testing roof for weak places; miners going into mine after obtaining electric cap lamps; rock-dusting entry to prevent explosion of coal dust; and drilling, undercutting, and shooting coal.