

# **DIRECTORY OF COMMERCIAL AND COLLEGE LABORATORIES**

**MISCELLANEOUS PUBLICATION M187**

**(Superseding Miscellaneous Publication M171)**

**U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS**

THIS VOLUME represents a project on the part of the United States Department of Commerce to collect and publish a directory of the commercial and college laboratories in the United States of America. The data recorded in the Directory have been obtained from responsible officers of the laboratories listed therein. Laboratories of consulting chemists, engineers, and metallurgists, and research laboratories of manufacturing companies and other industrial research laboratories have been listed only in case definite information has been supplied that they are engaged in commodity acceptance testing on a commercial basis. A list of 2,443 industrial research laboratories, including consulting research laboratories, has been compiled by the National Research Council, Washington, D. C., and published in Bulletin 113, July 1946. Price \$5.00.

Criticisms and suggestions are desired from all interested persons, so that the lists of commercial and college laboratories and the services they are willing to render may be kept as nearly complete, accurate, and up to date as possible. All recommendations for improvement received will be given careful consideration when future editions are issued.

U. S. DEPARTMENT OF COMMERCE  
W. Averell Harriman, Secretary



NATIONAL BUREAU OF STANDARDS  
E. U. Condon, Director

# DIRECTORY OF COMMERCIAL AND COLLEGE LABORATORIES

NATIONAL BUREAU OF STANDARDS MISCELLANEOUS PUBLICATION M187

Issued August 30, 1947

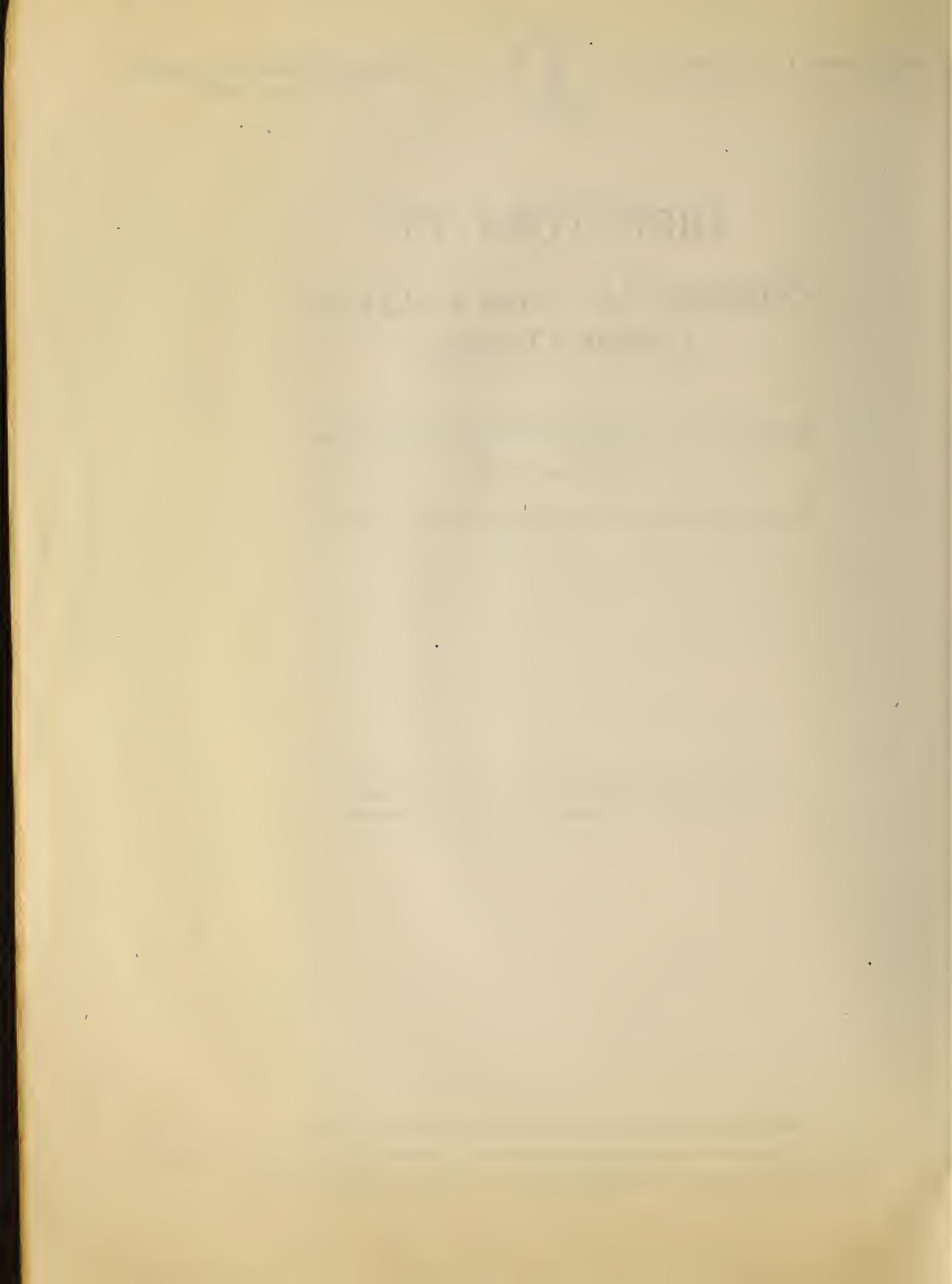
(Superseding Bureau of Standards Miscellaneous Publication M171)

Compiled by Ann E. Rapuzzi under the direction of George N.  
Thompson, Chief of Division of Codes and Specifications

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## INTRODUCTION

In accordance with the law, the National Bureau of Standards makes tests and carries out investigations for other Government agencies. The Bureau does not make tests for private individuals if other laboratories can do the work with sufficient accuracy. To inform interested persons of the location of other laboratories, the Bureau has attempted to compile a complete list of commercial testing and research laboratories throughout the country, together with indications of the types of commodities which they are willing to test for commodity acceptance or other purposes. Information is given concerning 220 commercial laboratories, with 80 branches or offices. There is also presented a list of the laboratories of 189 colleges that are used not only for purposes of instruction but also to a considerable extent for research and testing work.

It is believed that a classified list of commercial laboratories will be of assistance to the large number of purchasers who are not equipped to make their own acceptance tests and have therefore hesitated to buy on specifications. The knowledge that they can, at any time, call upon testing laboratories to check deliveries made to them on specifications should induce many purchasers to take full advantage of the specification method of buying.

In almost all of the college laboratories listed a certain amount of work is being done for State and municipal agencies and for public institutions, including the colleges themselves. However, there is a very wide diversity in the methods of conducting investigations, with special reference to the responsibility of the colleges for the investigations made in their laboratories. At some of the colleges investigations seem to be conducted under the responsibility of the heads of the departments, who make use of the college laboratories for this purpose. At certain other colleges work is carried on for tax-supported agencies, seemingly under the responsibility of the college rather than the professors. It is suggested that persons interested in ascertaining the conditions under which investigations will be carried on communicate directly with the proper officers of the colleges or with the individuals in charge of the laboratories.

Every effort has been made to present information that is comprehensive and accurate. If any errors or omissions are noted, it is requested that the attention of the Bureau be called to them so that appropriate correction may be made in the next edition.

## COMMERCIAL LABORATORIES

In the accompanying lists the laboratories have been arranged alphabetically both by names and in accordance with geographical location. Numerical references are used to indicate the types of commodities tested, and alphabetical references indicate the nature of the tests.

### SYMBOLIC REFERENCES TO NATURE OF TESTS OR RESEARCHES

Symbolic references to nature of investigations made are as follows:

a = Appearance, optical, microscopical.  
b = Bacteriological, biological, pathological.  
c = Chemical.  
e = Electrical, (including electronics).  
h = Heat, thermal, refractory.  
i = Inspection, supervision, construction.

l = Lubrication.  
m = Metallographic, metallurgical.  
p = Physical, mechanical.  
s = Service, performance, calibration.  
t = Toxicological.  
x = X-ray, radiographic.

**CLASSIFICATION OF COMMODITIES INVESTIGATED**

The following classification is used to indicate the types of commodities investigated and the numerical references thereto:

**000—099 = ANIMALS AND ANIMAL PRODUCTS (EXCEPT WOOL AND HAIR).**

000 = Animals.

010 = Meats.

020 = Dairy products.

030 = Fish.

040 = Animals and fish oils, fats, and greases.

050 = Hides and skins, raw (except furs).

060 = Leather and leather manufactures.

070 = Furs.

090 = Miscellaneous animal products.

**100—199 = VEGETABLE FOOD PRODUCTS, OIL SEEDS, EXPRESSED OILS, AND BEVERAGES.**

100 = Grains and preparations.

110 = Fodders and feeds.

120 = Vegetables.

130 = Fruits and nuts.

140 = Oil seeds and vegetable oils and fats.

150 = Cocoa, coffee, tea, condiments, and leavening agents.

160 = Sugar, molasses, syrup, honey, and confectionery.

170 = Beverages.

**200—299 = VEGETABLE PRODUCTS EXCEPT FOOD, FIBERS, AND WOOD.**

200 = Rubber and similar gums and manufactures thereof.

210 = Gums, resins, and balsams.

220 = Crude drugs and essential oils.

230 = Dyeing and tanning materials of vegetable origin.

240 = Seeds (except oil seeds).

250 = Nursery and greenhouse stock.

260 = Tobacco.

280 = Starch and vegetable glue.

290 = Miscellaneous vegetable products.

**300—399 = TEXTILES.**

300 = Cotton, cotton fabrics, and knit goods.

310 = Manufactures of cotton fabric.

320 = Jute and jute manufactures.

330 = Flax, hemp, and ramie.

340 = Other vegetable fibers, straw, or grass.

360 = Wool and hair and manufactures thereof.

370 = Silk and manufactures thereof.

390 = Miscellaneous textile products.

**400—499 = WOOD AND PAPER.**

400 = Lumber (logs, timber, and other unmanufactured or partly manufactured wood).

410 = Lumber for building and factory use.

420 = Manufactures of wood (except furniture).

430 = Furniture of wood.

470 = Paper (except printed matter).

490 = Miscellaneous paper products.

**500—599 = NONMETALLIC MINERALS.**

500 = Coal, petroleum, asphalt, and mineral wax.

510 = Stone, sand, and cementitious materials.

520 = Glass and glass products.

530 = Clay and clay products.

540 = Abrasive materials, asbestos, and chalk.

550 = Mica and rare minerals.

560 = Precious stones and imitations.

570 = Sulphur, magnesia, salt, and graphite.

590 = Other nonmetallic minerals.

**600—699 = ORES, METALS, AND MANUFACTURES (EXCEPT MACHINERY, VEHICLES, AND ELECTRICAL SUPPLIES).**

600 = Iron and steel.

610 = Iron and steel manufactures.

620 = Ferro-alloying ores and metals and alloy steel manufacturers.

630 = Aluminum, antimony, bismuth, cadmium, and cobalt.

640 = Copper, brass, and bronze.

650 = Lead, mercury, and nickel.

660 = Precious metals, metal jewelry, and plated ware.

670 = Clocks, watches, and dials.

680 = Tin and zinc.

690 = Miscellaneous ores, metals, alloys, and metal manufacturers.

**700—799 = MACHINERY AND VEHICLES.**

700 = Power generating machinery (except electric).

710 = Electrical machinery and supplies.

720 = Vehicles (except agricultural vehicles and steam locomotives).

730 = Agricultural machinery and implements.

740 = Construction, conveying, and hoisting machinery.

750 = Mining, oil well, and pumping machinery.

760 = Metal-working machinery.

770 = Textile, sewing, and shoe machinery.

780 = Industrial plant machinery.

790 = Miscellaneous machinery.

**800—899 = CHEMICALS AND ALLIED PRODUCTS.**

800 = Coal-tar products.

810 = Medicinal and pharmaceutical preparations.

820 = Acids (except coal-tar), anhydrides, alcohol, etc.

830 = Chemical compounds (except medicinals, acids, alcohols, and coal-tar products).

840 = Paints, varnishes, lacquers, and related products.

850 = Fertilizers and fertilizer materials.

860 = Explosives, fireworks, and ammunition.

870 = Soaps, cosmetics, and toilet preparations.

880 = Disinfectants and water treatments.

890 = Miscellaneous chemical products.

**900—999 = COMMODITIES NOT ELSEWHERE CLASSIFIED.**

910 = Scientific and professional apparatus and supplies.

920 = Musical instruments.

930 = Office, printing, lithographic, and educational supplies.

940 = Toys, athletic and sporting goods, and insignia.

950 = Containers.

970 = Fire-extinguishing apparatus and supplies.

980 = Brushes and brooms.

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## COMMERCIAL LABORATORIES

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Examples of use of numerical and symbolic references:

600cpm is to be interpreted as "Iron and steel tested chemically, physically, and metallographically."

### GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES

#### ALABAMA

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
<b>BIRMINGHAM:</b> Pittsburgh Testing Laboratory, 921 Fifth Avenue, North, Zone 4. Southern Testing Laboratories, 227 First Avenue, South, Zone 3.	See Pittsburgh. 020acip, 100ac, 110ac, 120ac, 130ac, 140ac, 170ac, 200ac, 210ac, 280ac, 290acp, 300ac, 310c, 320ac, 330ac, 400ip, 410ip, 420ip, 500aci, 510acip, 520ac, 530acip, 540acip, 550c, 590ac, 600acipm, 610acip, 620ac, 630ac, 640acip, 650ac, 680ac, 690acipm, 700i, 720i, 730i, 740i, 750i, 760i, 790i, 800aci, 820c, 830ac, 840aci, 850c, 860c, 870c, 880c, 890c.
<b>MOBILE:</b> Pittsburgh Testing Laboratory, 156 Mohawk Street.. A. W. Williams Inspection Co., 208 Virginia Street, Zone 3. (Offices at New York City, St. Louis, and Eugene, Oreg.)	See Pittsburgh. 020epi, 040epi, 100epi, 110epi, 140epi, 160c, 170c, 200epi, 220c, 280ep, 400api, 410api, 420api, 500epi, 510epi, 530epi, 540epi, 550epi, 570epi, 590epi, 600epi, 610epi, 620epi, 630epi, 640epi, 650epi, 660epi, 680epi, 690epi, 700spi, 710spi, 740spi, 790spi, 800epi, 820c, 830epi, 840epi, 850epi, 870epi, 880epi, 890epi, 950api.

#### ARIZONA

<b>KINGMAN:</b> E. Ross Householder Laboratories, 429 East Spring Street. <b>NOGALES:</b> Miller's Assay Office, 233 Grand Avenue..... <b>PHOENIX:</b> Arizona Testing Laboratories, 823 East Van Buren Street.	640c, 650c (lead, mercury), 660c (precious metals), 690c (ores), 750i (mining). 570c, 650c, 660c, 680c, 690c. 100c, 110c, 140c, 400i, 410i, 500c, 510cip, 530cip, 570c, 590c, 600cip, 610cip, 620cip, 630c, 640cip, 650c, 660c, 680c, 690c, 830c, 840c, 850c, 870c, 890c.
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#### ARKANSAS

<b>LITTLE ROCK:</b> Van Trump Testing Laboratory, 219 Terminal Warehouse Building.	See Chicago.
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#### CALIFORNIA

<b>CAPITOLA:</b> Dietrich, Morse and Associates..... <b>FRESNO:</b> The Twining Laboratories, 2527 Fresno Street, Zone 16.	See Sacramento. 000b, 010cb, 020ca, 030cb, 040cpal, 050epa, 060epa, 070epa, 090cap, 100cbas, 110cbas, 120cbas, 130cbas, 140cbas, 150cbas, 160cbas, 170cbas, 200cepas, 210ceas, 220cas, 230cbas, 240cba, 250sb, 260cb, 280cbps, 290cbas, 300cpa, 310cpa, 320cpa, 330cpa, 340cpa, 360cpa, 370cpa, 390cpa, 400cp, 410cp, 420cp, 430cp, 470cpa, 480cp, 490cpa, 500chp, 510cpai, 520cpa, 530chip, 540chip, 550cpa, 560epa, 570cp, 590cp, 600cpmi, 610cpmi, 620cpm, 630cpm, 640cpm, 650cpm, 660cpm, 670ps, 680cpm, 690cpmes, 700s, 710s, 720s, 730s, 740s, 750s, 760s, 770s, 780s, 790s, 800ct, 810bct, 820c, 830bct, 840cpa, 850cb, 860cp, 870cb, 880cb, 890bct, 910s, 930pas, 940pi, 950pi, 970pi, 980pi, 990pi.
<b>LOS ANGELES:</b> American Gas Association Testing Laboratories, 1425 Grande Vista Avenue. Atkin and McRae, 111 West Eleventh Street, Zone 15.. California Testing Laboratories, Inc., 1429 Santa Fe Avenue, Zone 21.	See Cleveland. 500c, 510c, 520c, 530c, 550c, 570c, 590c, 600c, 630c, 640c, 650c, 680c, 690c, 850c, 880c. 010bc, 020bc, 030bc, 040cpa, 090c, 100ac, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 200cp, 210c, 280c, 290c, 300apc, 310cpa, 320cpa, 330cpa, 340cpa, 360cpa, 370cpa, 390cpa, 400pi, 410pi, 470acpi, 500epi, 510cpma, 520cpma, 530cpma, 540cpa, 550acpm, 570cm, 590cm, 600acmpi, 610acmpi, 620acmpi, 630cpim, 640cpim, 650cpim, 660c, 680cm, 690cm, 700i, 740i, 750is, 800ci, 810c, 820c, 830c, 840cp, 850c, 870c, 880cb, 890c, 910p, 930cp, 950s, 970c.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## CALIFORNIA—Continued

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
LOS ANGELES—Continued. George W. Gooch Laboratories, 2580 East Eighth Street, Zone 23. John Herman Laboratory, 771 San Julian Street..... Robert W. Hunt Co., 658 Chamber of Commerce Building, Zone 15. Raymond G. Osborne Laboratories, Rives-Strong Building.	010c, 040c, 090c, 100c, 110c, 130c, 140c. 600c, 610c, 620c, 630c, 640c, 650c, 660c, 680c, 690c. See Chicago. 020c, 030c, 040ac, 060c, 090ac, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 200cp, 210c, 220c, 230c, 260c, 280c, 290c, 300c, 310c, 320cp, 330cp, 340c, 360c, 370c, 390c, 400cp, 410cp, 420cp, 430cp, 470cp, 490cp, 500cpa, 510cpia, 520cpia, 530cpia, 540cpia, 550cpia, 560cpia, 570cpia, 590cpia, 600cpim, 610cpim, 620cpim, 630acpm, 640acpm, 650acpm, 660acpi, 680acpi, 690acpi, 700alps, 720alps, 730alps, 740alps, 750alps, 760alps, 770alps, 780alps, 790alps, 800cp, 810acpi, 820cp, 830cp, 840acpsi, 850ci, 870ca, 880epias, 890epi, 930c, 940cp, 950cp, 970cp, 980cpia, 990cpia.
Smith-Emery Co., 920 Santee Street, Zone 15.....	010ca, 020cab, 030ca, 040cpa, 060c, 090c, 100c, 110cb, 120cb, 130c, 140cpa, 150ca, 160cpa, 170cpab, 200cp, 210cp, 220c, 280cp, 290c, 300p, 310p, 320p, 330p, 340p, 360cp, 370cp, 390cp, 400epi, 410cp, 420cp, 470cp, 490cp, 500cpa, 510cpa, 520cpam, 530cpam, 540cpa, 550cpa, 560cpa, 570cpa, 590cpai, 600cpaim, 610cp, 620cp, 630cp, 640cp, 650cp, 660cp, 680cp, 690cpim, 700i, 710i, 730i, 740i, 750i, 790i, 800cp, 820c, 830c, 840cpa, 850c, 860cp, 870bc, 880bcp, 890cp, 990cp.
Truesdail Laboratories, Inc., 520 West Avenue 26.....	000eb, 010eb, 020eb, 030eb, 040eb, 090eb, 100eb, 110eb, 120eb, 130eb, 140eb, 150eb, 160eb, 170eb, 220eb, 290eb, 810eb, 850eb, 880eb, 890eb. 290aehps, 340aehps, 420aehps, 510aehps, 520achps, 530aehps, 570aehps, 910aehps.
PASADENA: R. C. Burt Scientific Laboratories, 327 South Michigan Avenue, Zone 5. SACRAMENTO: Dietrich, Morse and Associates, 316 Sixteenth Street, Zone 14. (Branch at Capitola, Calif.)	010c, 020bci, 030c, 040cp, 090c, 110c, 130c, 140c, 160c, 170cb, 500cp, 510cp, 520c, 530cp, 540c, 550c, 570c, 590c, 600c, 630c, 640c, 650c, 660c, 680c, 690c, 850c, 870c, 880c.
SAN FRANCISCO: Container Testing Laboratories, Inc., 151 New Montgomery Street. Curtis & Tompkins, Ltd., 236 Front Street, Zone 11....	See Chicago. 010abc, 020abc, 030abc, 040abc, 050abc, 060abc, 090abc, 100abc, 110abc, 120abc, 130abc, 140abc, 150abc, 160abc, 170abc, 200abc, 210abc, 220abc, 230abc, 240abc, 260abc, 280abc, 290abc, 300abc, 310abc, 320abc, 330abc, 340abc, 360abc, 370abc, 390abc, 420ac, 470ac, 490ac, 500ac, 510ac, 520ac, 530ac, 540ac, 550ac, 570ac, 590ac, 600c, 610c, 620c, 630c, 640c, 650c, 660c, 680c, 690c, 800abc, 810abc, 820abc, 830abc, 840abc, 850abc, 870abc, 880abc, 890abc, 950ac, 970c. 060cip, 500c, 510cip, 530cp, 540cp, 550cp, 570c, 590cp, 600cipm, 610cip, 620cipm, 630c, 640cip, 650c, 660c, 680c, 690c, 840ci, 850ci.
Abbot A. Hanks, Inc., 624 Sacramento Street.....	See Philadelphia.
E. F. Houghton & Co., Quint Street and Davidson Avenue, Zone 24. Robert W. Hunt Co., 251 Kearny Street, Zone 8..... Pacific Chemical Laboratories, 617 Montgomery Street, Zone 18.	See Chicago. 010abci, 020abci, 030abci, 040abci, 060abci, 090abci, 100abci, 110abci, 120abci, 130abci, 140abci, 150abci, 160abci, 170abci, 260abci, 280abci, 290abci, 300abci, 310abci, 370abci, 390abci, 470abci, 490abci, 500abci, 510abci, 530abci, 540abci, 570abci, 590abci, 600abci, 620abci, 630abci, 640abci, 650abci, 680abci, 690abci, 800abci, 810abci, 820abci, 830abci, 840abci, 850abci, 860abci, 870abci, 880abci, 890abci, 950abci, 970abci, 990abci. 010bc, 020bc, 030bc, 040bc, 060c, 090c, 100c, 110bc, 120bc, 130c, 140acp, 150ac, 160c, 170bc, 200cp, 210cp, 220c, 280c, 290c, 300cp, 310c, 320c, 330cp, 340cp, 360cp, 370cp, 390cp, 400acp, 410acp, 490cp, 500cp, 510cp, 520cp, 530cp, 540cp, 550cp, 570cp, 590cp, 600cim, 610ci, 620cm, 630cm, 640cm, 650cm, 680cm, 690cm, 700ip, 710ip, 720ip, 730ip, 740ip, 750ip, 760ip, 780ip, 790ip, 800c, 810c, 820c, 830c, 840c, 850c, 870c, 880c, 890c, 910ip, 980ip, 990ip.
Pittsburgh Testing Laboratory, 651 Howard Street, Zone 5.	630c, 650c, 660c, 680c.
Wildberg Bros. Smelting and Refining Co., 742 Market Street, Zone 2.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## COLORADO

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
<b>DENVER:</b> Root & Simpson, Inc., 1310 East Seventeenth Avenue, Zone 6. The Henry E. Wood Assaying Co., 1750 Arapahoe Street, Zone 2.	630cm, 640cm, 650cm, 660cm, 680cm. 500c, 570c, 600cm, 610cm, 620cm, 630cm, 640cm, 650cm, 660cm, 680cm, 690cm.

## CONNECTICUT

<b>BRIDGEPORT:</b> Bridgeport Testing Laboratory, 675 Knowlton Street, Zone 8. (Branch at Hamden, Conn.)	010bc, 020bc, 040c, 050c, 060c, 070c, 100c, 110c, 120c, 140c, 150c, 160c, 170bc, 200c, 210c, 280c, 300c, 320c, 330c, 360c, 470pc, 500pc, 510c, 520c, 530c, 540c, 550c, 560c, 570c, 590c, 600cmplx, 610cmplx, 620cmplx, 630cmplx, 640cmplx, 650cmplx, 660cmplx, 680cmplx, 690cp, 800c, 810c, 820c, 830c, 840c, 850c, 860c, 870c, 880c, 890c.
<b>DANBURY:</b> Horace J. Hallowell, 323 Main Street.....	040c, 060c, 220c, 230c, 470c, 510c, 530c, 540c, 550c, 560c, 570c, 590c, 600c, 630c, 650c, 680c, 810c, 820c, 850c, 870c, 880c, 890c, 970c.
<b>HAMDEN:</b> Bridgeport Testing Laboratory, 2813 Dixwell Avenue, Zone 14.	See Bridgeport.
<b>HARTFORD:</b> The Stanley P. Rockwell Co., 296 Homestead Avenue. The Henry Souther Engineering Corp., 11 Laurel Street.	600himp, 610himp. 020c, 040c, 060c, 140c, 200c, 280c, 410p, 470cp, 500cp, 510p, 600cpm, 620c, 630cpm, 640cpm, 650cpm, 680cpm, 880c. 140acp, 200cp, 300p, 320p, 400acip, 410api, 420ap, 500acip, 510- acip, 530acip, 540p, 570cp, 600cp, 630acp, 650cp, 800acip, 840acip, 870acp, 890acp, 970acp, 990acp.

## DISTRICT OF COLUMBIA

<b>WASHINGTON:</b> Dalaré Associates, 1717 North Capitol Street..... Froehling and Robertson, Inc., 1531 Wisconsin Avenue, NW. Stewart Research Laboratory, P. O. Box 173..... Timber Engineering Co., 1319 Eighteenth Street NW, Zone 6.	See Philadelphia. See Richmond. 210acps, 500acps, 540acps, 550acps, 800acps, 840acps, 890acps, 910acps, 970acps, 980acps, 990acps. 400aps, 410aps, 420aps, 430aps, 470cp, 490cp.
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## FLORIDA

<b>JACKSONVILLE:</b> Pittsburgh Testing Laboratory, 2446 Dennis Street, Zone 3.	See Pittsburgh.
<b>MIAMI:</b> H. C. Nutting Co., 1010 Northwest Twentieth Street, Zone 37. South Florida Test Service, 4201 Northwest Seventh Street, P. O. Box 387.	See Cincinnati. 060ais, 090ais, 160ais, 200acehips, 290ais, 300abcehips, 360- abcehips, 370ais, 390abcehips, 400abcehips, 430ais, 470abcehips, 490abcehips, 500ais, 520ahips, 590ais, 600aips, 630achips, 640achips, 690aisp, 700ais, 710ais, 720ais, 790aips, 800ahips, 810ahips, 840abchips, 890ais, 910aipsh, 930ahs, 990abchilps. See Pittsburgh.
<b>TAMPA:</b> Pittsburgh Testing Laboratory, 1504 Grand Central Avenue.	

## GEORGIA

<b>ATLANTA:</b> Barrow-Agee Laboratories, Inc., 16 Baker Street, N.E. Law and Co., 16 East Baker Street..... State Highway Board of Georgia, 2 Capitol Square....	See Memphis. See Wilmington, N. C. 500cp, 510p, 530cp, 600cp, 800cp, 840cp, 850cp.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## ILLINOIS

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
CAIRO: Barrow-Agee Laboratories, Inc., Board of Trade Building. CHICAGO: Automatic Electric Co., 1033 West Van Buren Street, Zone 7. Chicago Testing Laboratory, Inc., 536 Lake Shore Drive, Zone 11. Colburn Laboratories, 431 South Dearborn Street, Zone 15.	See Memphis.
The Columbus Laboratories, 31 North State Street, Zone 2.	200aeips, 390aeips, 470aceps, 600acips, 640acips, 710aehilps, 840aceps, 890c, 910aehilps, 990ahilps. 200acp, 210acp, 470acip, 500acip, 510acip, 530acip, 800acip, 840acp. 010bc, 020c, 040c, 090c, 100bci, 110bci, 120bci, 130bci, 140bci, 150bci, 160bci, 170bci, 200c, 210ci, 220aci, 280aci, 290ac, 300ac, 360ac, 370ac, 390ac, 470acs, 490acs, 500c, 510c, 530c, 540ac, 570c, 590c, 660c, 690c, 800c, 810bci, 820c, 830c, 840c, 850ci, 860c, 870bc, 880bc, 890c, 910ace, 930aci, 950acp, 970c. 000abct, 010abc, 020abc, 030abc, 040abc, 050abc, 060abc, 070abc, 090a, 100abc, 110abc, 120abc, 130abc, 140abc, 150abc, 160abc, 170abc, 200abc, 210abc, 220abc, 230abc, 240abc, 250b, 260abc, 280abc, 290abc, 300abc, 310abc, 320abc, 330abc, 340abc, 360abc, 370abc, 390abc, 400abc, 410abc, 420abc, 430abc, 470abc, 480abc, 490abc, 500abc, 510abc, 520abc, 530abc, 540abc, 550abc, 570abc, 590abc, 800abc, 810abc, 820abc, 830abc, 840abc, 850abc, 860abc, 870abc, 880abc, 890abc, 950abc, 970abc, 980abc, 990abc. 500ep, 510ep, 530ep, 700hips, 880cs.
Commercial Testing & Engineering Co., 307 North Michigan Avenue, Zone 1. (Branches at Charleston, W. Va.; Cleveland, Toledo, and Detroit.) Container Testing Laboratories, Inc., 112 West Kinzie Street, Zone 10. (Branches at New York City and San Francisco). Dearborn Chemical Co., 310 South Michigan Avenue, Zone 4. Walter H. Flood & Co., 6102 South Blackstone Avenue, Zone 37. (Branch at Kalamazoo, Mich.) Graham, Crowley & Associates, Inc., 407 South Dearborn Street, Zone 5. (Branch at Jenkintown, Pa.) Gulick-Henderson Co., Inc., 431 South Dearborn Street, Zone 5. E. F. Houghton & Co., 3516 Shields Avenue..... Robert W. Hunt Co., 175 West Jackson Boulevard, Zone 4. (Branches at Los Angeles, New York City, Pittsburgh, St. Louis, San Francisco, Seattle, Montreal, Canada; and London, England).	300ips, 420ips, 470ips, 490ips, 520ips, 950ips. 140cp, 210c, 230c, 300p, 470p, 490p, 500cp, 800p, 840cp, 880cp, 890ap. 400cip, 500cip, 510cip, 530cip, 800cip, 840cp, 200c, 210c, 230c, 280c, 290c, 470ce, 480c, 490c, 520c, 530c, 800c, 820c, 830c, 850c, 870c, 880c, 890c, 930c, 950c, 970c, 990c. See Pittsburgh.
Charles C. Kawin Co., 431 South Dearborn Street, Zone 5. (Branch at Buffalo, N. Y.) The Miner Laboratories, 9 South Clinton Street, Zone 6. Phoenix Chemical Laboratory, Inc., 3953 Shakespeare Avenue, Zone 47. Pittsburgh Testing Laboratory 411 North LaSalle Street, Zone 10. Portland Cement Association (Research Laboratory), 33 West Grand Avenue, Zone 10. The Don L. Quinn Co., 224 West Kinzie Street, Zone 10. Servicised Products Corp., 6501 West Sixty-fifth Street, Zone 38. E. A. Siebel & Co., 8 South Dearborn Street, Zone 3... J. E. Siebel Sons' Co., 741-7 Jackson Boulevard, Zone 6. United States Testing Co., 325 West Huron Street, Zone 10. Van Trump Testing Laboratory, 329 South Wood Street, Zone 12. (Branch at Little Rock, Ark.)	See Philadelphia. 040c, 060cips, 140c, 200cp, 280c, 300acipsx, 400acipsx, 410acipsx, 420acipsx, 430acipsx, 500achips, 510achimpxs, 520acip, 530achimpxs, 540achimpxs, 550achimpxs, 570achipsx, 590achipsx, 600achipsx, 610achipsx, 620achipsx, 630achipsx, 640achipsx, 650achipsx, 660achipsx, 680achipsx, 690achipsx, 700acipsx, 710acipsx, 720acipsx, 730acipsx, 740acipsx, 750acipsx, 760acipsx, 780acipsx, 790acipsx, 800aci, 820ci, 830ci, 840achips, 850c, 870c, 880c, 890ci. 500c, 510cp, 530c, 540c, 570c, 600cpm, 610epm, 620cpm, 630cpm, 640cpm, 650c, 680c, 690cpm. 010c, 020c, 030c, 040c, 050c, 090c, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 210c, 220c, 260c, 280c, 290c, 300ac, 310ac, 320ac, 330ac, 340ac, 360ac, 370ac, 390ac, 870c, 890c, 990c. 040achlp, 140achlp, 500aechilps, 800achilps, 890c, 910s. See Pittsburgh. 510aep. 950p. 200cp, 500cp. 040abcp, 100abc, 110abc, 140abcp, 160abc, 170abcips, 280abc, 290cb, 500ch, 570c, 600c, 610c, 620c, 630c, 640c, 650c, 690c, 790is, 820cp, 830ep, 850bi, 880bc, 890abcp, 910hp. 020bc, 040bcp, 100c, 110c, 140cp, 150cp, 160cp, 170bcp, 210c, 500ch, 570c, 590c, 820c, 850c, 880c. See Hoboken. 400ips, 410ips, 500cips, 510ips, 530p, 600cips, 630cip, 800ips, 840cp.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## ILLINOIS—Continued

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
CHICAGO—Continued. Wahl-Henius Institute, 64 East Lake Street.....	010abc, 020abc, 030abc, 040abc, 060abc, 100abcis, 110abcis, 120abcs, 130abc, 140abc, 150abc, 160abcs, 170abcips, 210abc, 220abc, 240abc, 260ac, 280abci, 290abcip, 300ab, 310ab, 420abc, 500acps, 520aps, 540abeps, 780is, 800abcips, 810abcips, 830abcips, 840acs, 850abcs, 870abcps, 880abcips, 890abcips, 910abcips, 950bcips, 970bcips.
E. H. Ward & Co., 608 South Dearborn Street.....	510cp, 600ip, 610ip.
QUINCY: Central Fibre Products Co., 831 South Front Street.	470cpasi, 490cpasi.

## INDIANA

INDIANAPOLIS: Industrial Oils Laboratory, 3305 East Michigan Street, Zone 1. Pittsburgh Testing Laboratory, 3821 East New York Street, Zone 1.	040cp, 060c, 140cp, 500cp, 510c, 600p, 630c, 640c, 650c, 680c, 690c, 790il, 800c, 850c, 990c. See Pittsburgh.
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## IOWA

DES MOINES: Howard C. Maffitt, 522 Eleventh Street, Zone 9.....	000ac, 010abc, 020abc, 030abc, 040cp, 050c, 060c, 070e, 090abc, 100abc, 110abc, 120abc, 130abc, 140abcp, 150abc, 160abc, 170abc, 200c, 210c, 220c, 230c, 240c, 250c, 260c, 280c, 290c, 300cap, 310cap, 320cap, 330ca, 340ca, 360ca, 370cap, 390ca, 400c, 410c, 420c, 430c, 470ca, 480ca, 490ca, 500chp, 510cp, 520c, 530c, 540cap, 550c, 570c, 590c, 600ca, 610ca, 620ca, 630ca, 640ca, 650ca, 660c, 680ca, 690ca, 800c, 810c, 820c, 830c, 840acp, 850c, 860c, 870c, 880cbi, 890c, 930c, 940c, 950c, 970c, 980c, 990c, 020cp, 040cpa, 110c, 140cpa, 170c, 210ep, 240cp, 260c, 280cp, 300hip, 320cip, 330cip, 360cip, 390ciphe, 400ip, 410iph, 470ciphe, 490ciphe, 500ciphe, 510cipha, 520cipha, 530cipha, 540cipha, 550c, 570cp, 590cipha, 600acip, 610acip, 620acip, 630acip, 640acip, 650acip, 660cp, 680acip, 690acip, 700ip, 710aipes, 720aips, 740aips, 790acips, 800acip, 830acips, 840acips, 850c, 870cips, 880cips, 910ips, 950ips, 970cips, 980ps, 990acips.
Patzig Testing Laboratories, 2215 Ingersoll Avenue, Zone 12.	

## KENTUCKY

LOUISVILLE: Barrow-Agee Laboratories, Inc., 1315 South Thirteenth Street. Janes & Geiger, Inc., 817 West Market Street, Zone 2..	See Memphis. 010c, 110c, 170c, 260c, 500chl, 600c, 620c, 640c, 800cp, 850c, 890c
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## LOUISIANA

NEW ORLEANS: Chas. Martin & Co., 833 Howard Avenue, Zone 13.... Pittsburgh Testing Laboratory, 816 Howard Avenue, Zone 13. The Rice Millers' Association, 1101 Queen & Crescent Bldg., Zone 12. Shilstone Testing Laboratory, 510 Gravier Street, Zone 12. (Branches at Houston and Corpus Christi, Tex.)	See New York City. See Pittsburgh. 100aips (rice). 020abc, 040abc, 090abc, 100abc, 110abc, 120abc, 140abci, 150abci, 160abci, 170abc, 200c, 210c, 220abc, 230c, 240c, 280abc, 290abc, 320i, 330i, 340i, 400i, 410i, 420i, 490cp, 500cp, 510cp, 520cp, 530cp, 540cp, 550c, 570cp, 590cp, 600cp, 610cm, 620cm, 630cm, 640cm, 650cm, 680cm, 690cm, 700i, 710i, 720i, 740i, 750i, 760i, 770i, 780i, 790i, 800ci, 810ci, 820ci, 830ci, 840cip, 850ci, 860ci, 870ci, 880abci, 890abci, 910i, 950i, 970i.
SHREVEPORT: Barrow-Agee Laboratories, Inc., 721½ Marshall Street, Zone 88.	See Memphis.

<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued**

<b>MAINE</b>	
Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
LEWISTON: A. B. Andrews, rr 166 Main Street.....	020c, 040c, 090c, 110c, 200c, 490c, 500c, 520p, 530c, 600c, 610c, 640c, 790p, 810c, 820c, 850c, 890c, 910p.
<b>MARYLAND</b>	
<b>BALTIMORE:</b>	
E. L. Conwell & Co., 921 South Wolfe Street.....	<i>See Philadelphia.</i>
Dalare Associates, 210 East Lexington Street.....	<i>See Philadelphia.</i>
Froehling & Robertson, Inc., 3805 Brooklyn Avenue.....	<i>See Richmond.</i>
Gascoyne & Co., Inc., 27 South Gay Street.....	020c, 030c, 040c, 060c, 090c, 100ca, 110ca, 140c, 170c, 260c, 290c, 360c, 390c, 500cp, 510cp, 570c, 590c, 640c, 650c, 660c, 680c, 850acip, 870c, 890c.
Hamlin & Morrison, 502 East Pratt Street.....	<i>See Philadelphia.</i>
Penniman & Browne, 341 St. Paul Place, Zone 2.....	010cb, 020cb, 030cb, 040cb, 090cb, 100cb, 110cb, 120cb, 130cb, 140cb, 150cb, 160cb, 170cb, 200c, 210c, 220c, 280c, 290c, 300cp, 310cp, 320cp, 330cp, 340cp, 360cp, 370cp, 390cp, 400cp, 410cp, 470cp, 490c, 500cs, 510cps, 520c, 530c, 540c, 550c, 570c, 590c, 600cmp, 610cmp, 620cmp, 630cmp, 640cmp, 650cm, 660cm, 680cm, 690cm, 800c, 810ci, 820c, 830c, 840c, 850c, 870c, 880c, 890c, 950p.
Strasburger & Siegel, 15 South Gay Street, Zone 2....	010abc, 020abci, 030abci, 040bcp, 090bc, 100cp, 100c, 120bcp, 130abcp, 140cp, 150c, 160bcp, 170bc, 210cp, 240cp, 260c, 280c, 290bc, 300ac, 390ac, 500c, 510ci, 530ci, 600c, 610c, 620c, 630c, 640c, 650c, 660c, 680c, 830c, 840c, 850c, 860c, 870c, 880bc, 890c.
Wiley & Co., Inc., Calvert and Reed Streets, Zone 2....	010c, 020c, 030c, 040c, 100c, 110c, 170c, 500cp, 510cp, 530c, 570c, 840cp, 850c, 870c, 880c, 890c, 990c.
SILVER SPRING: National Institute of Cleaning and Dyeing, 8001 Georgia Avenue.	070px, 390cps, 870s.
<b>MASSACHUSETTS</b>	
<b>BOSTON:</b>	
W. C. Durfee Co., Inc., 114 Federal Street, Zone 10..	230c, 300c, 310p, 360cp, 370cp, 390cp, 800c.
Esselen Research Corp., 857 Boylston Street, Zone 16..	060acp, 150acip, 160c, 170c, 200acips, 210cp, 300abcips, 310abcips, 320abcips, 330abcips, 340abcips, 360abcips, 370abcips, 390abcips, 420acips, 470abcips, 490abcips, 500cps, 800cp, 820cp, 830acps, 840acps, 870cps, 910cp, 970cps.
Factory Mutual Laboratories, 184 High Street, Zone 48.	040ch, 140ch, 200cps, 410hs, 500ch, 510ips, 630hips, 640hips, 710eps, 840cis, 890cis, 970cps.
Skinner & Sherman, Inc., 246 Stuart Street, Zone 16...	010bc, 020bc, 030bc, 040c, 060cp, 100bc, 110bc, 120bc, 130bc, 140c, 150bc, 160bc, 170bc, 200cp, 210c, 220c, 260c, 280c, 290c, 300cp, 310cp, 320acp, 330acp, 340ac, 360acp, 370acp, 390acp, 470acp, 490acp, 500cp, 510cp, 520c, 530c, 540c, 550c, 570c, 590c, 600c, 610c, 620c, 630c, 640c, 650c, 660c, 680c, 690c, 800bet, 810bet, 820c, 830c, 840c, 850c, 870ct, 880bct, 890c.
United States Testing Co., Inc., 791 Tremont Street, Zone 18.	<i>See Hoboken.</i>
BROOKLINE: The Thompson & Lichtner Co., 8 Alton Place..	200acp, 290acp, 390acp, 400acpi, 410acpi, 420acpi, 470acp, 500acpi, 510acpi, 530acpi, 600cp, 610cp, 620cp, 630cp, 640cp, 650cp, 680cp, 690cp, 720pi, 730pi, 740pi, 750pi, 760pi, 790pi, 840c, 870c, 890c.
<b>CAMBRIDGE:</b>	
General Radio Co., 275 Massachusetts Avenue, Zone 39.	710is, 910is.
Saxl Instrument Co., 6 Linnaean Street, Zone 38.....	300acehips, 310acehips, 320acehips, 330acehips, 340acehips, 360acehips, 370acehips, 390acehips, 400acehips, 410acehips, 420acehips, 470acehips, 770acehips, 780acehips, 790acehips, 840acehips, 890acehips, 910acehips, 990acehips.
PEABODY: The R. & M. Industrial Laboratories, 4 Union Street.	040c, 050c, 060c.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## MICHIGAN

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
<b>DETROIT:</b> Commercial Testing and Engineering Co., 723 Penobscot Building, Zone 26. The Detroit Testing Laboratory, 554 Bagley Avenue, Zone 26.	See Chicago. 010cb, 020cb, 040cb, 060cp, 090cb, 100cba, 110cba, 130cba, 140cba, 150cba, 160cba, 170cb, 280acp, 290ca, 300cpa, 310cp, 320ap, 330cap, 360cpa, 370cpa, 390cap, 410p, 470cpa, 490cpa, 500chl, 510cip, 530cp, 540cp, 570c, 590c, 600cpmi, 610cpmi, 620cpmi, 630cpmi, 640cpmi, 650cpmi, 680cpmi, 690cpmi, 800ci, 820c, 830c, 840cipi, 850c, 870c, 880c, 890c.
Pittsburgh Testing Laboratory, 436 Cass Avenue, Zone 26.	See Pittsburgh.
KALAMAZOO: Walter H. Flood & Co., 1332 North West-nedge Avenue, Zone 53.	See Chicago.
ST. JOHNS: Beechem Laboratories, 301 North Oakland Street.	010abct, 020abct, 110abct, 130abct, 140abct, 160abct, 170abct, 200abct, 280abct, 290abct, 850abct, 870abct, 880abct, 890abct, 950abct.

## MINNESOTA

<b>DULUTH:</b> Minnesota Testing Laboratories, Inc., 618 Lyceum Building, Zone 2.	020cbi, 100c, 110c, 140c, 170c, 400cip, 490cp, 500ciph, 510cip, 530ciph, 540cip, 550ip, 570cip, 590cip, 600cipm, 610cipm, 620cipm, 630cipm, 640cipm, 650cipm, 680ci, 690cipm, 740ipml, 760ipml, 790ipml, 800cip, 820ci, 830ci, 840ci, 850c, 870ci, 880c, 890ci, 940i, 950i, 970ci. See St. Paul.
Twin City Testing and Engineering Laboratory..... MINNEAPOLIS: Van Cleve Laboratories, Inc., 322 South Fourth Street, Zone 19.	010abc, 020abc, 030abc, 040abc, 100ac, 110ac, 140ac, 150ac, 160ac, 170acb, 200ac, 210ac, 280ac, 290ac, 300acp, 310acp, 370acp, 390acp, 470acp, 500acp, 510acp, 520acp, 530acp, 540acp, 550acp, 560acp, 570acp, 590acp, 600acp, 610acp, 620acp, 630acp, 640acp, 650acp, 660acp, 680acp, 690acp, 800acp, 810ac, 820ac, 830ac, 840ac, 850ac, 860ac, 870ac, 880abc, 890abc, 930acp, 970ac, 990acp. 280psi, 300pas, 320pas, 330pas, 340pas, 360pas, 370pas, 390pas, 400pis, 410pis, 420ps, 430ps, 470p, 490p, 500phsc, 510pci, 520p, 530pcps, 590pic, 600pcms, 610ipc, 620pcms, 630pcms, 640pcms, 650pcms, 680pcms, 690pc, 700sp, 800pci, 830c, 840pci, 850c, 870c, 890c, 990pca.
ST. PAUL: Twin City Testing and Engineering Laboratory, 2440 Franklin Avenue, Zone 4. (Branch at Duluth.)	

## MISSISSIPPI

JACKSON: Barrow-Agee Laboratories of Mississippi, Inc., 128½ North Gallatin Street, Zone 109.	See Memphis.
LELAND: Barrow-Agec Laboratories of Mississippi, Inc., 209 Main Street.	See Memphis.

## MISSOURI

JEFFERSON CITY: Missouri State Highway Dept., Highway Building. JOPLIN: The Bruce Williams Laboratories, 620 Joplin Street. (Branch at Picher, Okla.)	210cp, 400ip, 410ip, 470p, 500cip, 510cip, 530cp, 570c, 600cip, 640cip, 680c, 800cip, 840cip, 850c, 870c, 880cp, 890c. 010ci, 020abci, 030ci, 040ci, 090ci, 100bcip, 110abcip, 120cbi, 130abci, 140abcip, 160abcip, 170abcip, 220c, 260c, 280c, 400acip, 500achimp, 510achimp, 520achimp, 530achimp, 540achimp, 550achimp, 560achimp, 570achimp, 590achimp, 600acimp, 610acimp, 620acimp, 630acimp, 640acimp, 650acimp, 660acimp, 680acimp, 690acimp, 800achilp, 810c, 820achilp, 830achilp, 840achilp, 850achilp, 870achilp, 880achilp, 890achilp, 970cp, 990cip.
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<sup>1</sup>See pages 1 and 2 for symbolic references

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## MISSOURI—Continued

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
KANSAS CITY: General Testing Laboratories, 1519 Walnut Street....	010c, 020c, 040c, 090cp, 100et, 110ct, 120et, 130et, 140et, 150et, 160ct, 170ct, 210c, 220c, 230c, 240c, 260c, 280c, 290ct, 300ep, 310ep, 320cp, 330cp, 340cp, 360cp, 370cp, 390cp, 400cip, 410cip, 420cp, 430ip, 470cip, 480cp, 490cip, 500cip, 510cip, 520cip, 530cip, 540cip, 550cp, 560cp, 570cp, 590cip, 600cip, 610cip, 620cp, 630cp, 640cp, 650cp, 660cp, 680cp, 690cip, 800cp, 810c, 820c, 830c, 840cip, 850c, 860c, 870c, 880c, 890cip, 910cip, 950p, 990cip.
Industrial Testing Laboratory, 930 Wyandotte Street, Zone 6.	020c, 100c, 110c, 160c, 170c, 220c, 360c, 500c, 540c, 570c, 590c, 600c, 630c, 640c, 650c, 660c, 680c, 690c, 800c, 810c, 820c, 830c, 850c, 870c, 880c, 890c.
ROLLA: Missouri Clay Testing and Research Laboratories, Missouri School of Mines and Metallurgy.	510cpax, 520caphx, 530pcphasesx, 540ampex, 570chaspex (magnesia), 590chapsex.
ST. LOUIS: George A. Hale, 116-20 North Fourth Street, Zone 2	010abc, 020abc, 040c, 100bci, 120c, 140abcp, 160c, 170c, 210c, 220c, 230c, 280c, 420c, 500acip, 510acip, 520cp, 530cp, 540cp, 570c, 590cip, 600cip, 610c, 620c, 630c, 640c, 650c, 680c, 690c, 700pi, 780pi, 790pi, 800cp, 810c, 820c, 830c, 840cip, 850c, 870c, 890epi, 970p. See Chicago.
Robert W. Hunt Co., Syndicate Trust Building, Zone 1.	530ceph.
Laclede-Christy Clay Products Co., 1711 Ambassador Bldg., 7th and Locust Streets, Zone 1.	See Pittsburgh.
Pittsburgh Testing Laboratory, 4575 Chouteau Avenue, Zone 10.	140c, 170ac, 200acp, 210ac, 220ac, 500acp, 510acp, 530acp, 540acp, 550ac, 570ac, 590ac, 600acmpx, 610acmpx, 620acmpx, 630acmpx, 640acmpx, 650acmpx, 680acmpx, 690acmpx, 800acp, 820cp, 830cp, 840acp, 870ac, 880acp, 890acp.
St. Louis Testing Laboratory, 2317 Chouteau Avenue..	040c, 140c, 160c, 170c, 890c. See Mobile.
H. E. Wiedemann, 1604 Chemical Building, Zone 1.... A. W. Williams Inspection Co., Paul Brown Building, Zone 1.	

## NEBRASKA

LINCOLN: Harris Laboratories, Security Mutual Building, Zone 8.	010abc, 020abci, 030ab, 040abcp, 090abcp, 100abc, 110c, 120abc, 130abc, 140abcp, 150abcp, 160abc, 170abci, 210c, 220ac, 260c, 280ac, 290abc, 470c, 490c, 500acp, 510c, 530c, 570c, 600c, 610c, 620c, 630c, 640c, 650c, 660c, 670c, 680c, 690c, 800abct, 810abct, 820ct, 830ct, 840ac, 850c, 860c, 870abci, 880abct, 890abc, 910is.
OMAHA: Omaha Testing Laboratories, Inc., 511 South Twentieth Street, Zone 2.	010c, 020bc, 040bc, 090bc, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170bc, 280c, 290c, 390c, 410p, 490c, 500cp, 510cp, 530cp, 540c, 550c, 560c, 570c, 590c, 600cp, 610ep, 620cp, 630cp, 640cp, 650cp, 660c, 680cp, 690cp, 800cp, 810c, 830c, 840cp, 850c, 870c, 880c, 890c.

## NEVADA

CARSON CITY: State of Nevada, Department of Highways, Heroes Memorial Building.	210acip, 400ai, 500acips, 510acips, 530acips, 590acips, 600acimps, 610acimps, 640acimps, 800ac, 840aci, 890aci.
LOVELOCK: Lovelock Assay Office (A. H. Scott), Broadway and Main Streets, P. O. Box 7.	650cmp, 660cmp, 680cnp.

## NEW HAMPSHIRE

CONCORD: New Hampshire Highway Department Testing Laboratory, Stickney Avenue.	500cp, 510ep, 530cp, 600cp, 690cp, 800cp, 840cp, 890cp.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued**

**NEW JERSEY**

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
BELLEVILLE: Standard Testing Laboratories, Inc., 309 Cortlandt Street.	600c, 620ci, 630ci, 640ci, 650ci, 660ci, 680ci, 690ci.
BLOOMFIELD: Leberco Laboratories, 36 Roosevelt Avenue.	000bt, 020abci, 030ab, 040abept, 090ab, 100abc, 110ab, 140abt, 150abct, 160abc, 170abc, 210ab, 220abt, 280ab, 290abt, 800abct, 810abct, 820abct, 830abct, 870abct, 880abct, 890abct.
CALIFON: St. John X-Ray Laboratory.....	040x, 050x, 060x, 100x, 140x, 170x, 200x, 210x, 220x, 230x, 240x, 260x, 280x, 300x, 310x, 320x, 330x, 340x, 360x, 370x, 390x, 400x, 410x, 420x, 430x, 480x, 500x, 510x, 520x, 530x, 540x, 550x, 560x, 570x, 590x, 600x, 610x, 620x, 630x, 640x, 650x, 660x, 670x, 680x, 690x, 700x, 710x, 720x, 730x, 740x, 750x, 760x, 770x, 780x, 790x, 800x, 810x, 820x, 830x, 840x, 850x, 860x, 870x, 880x, 890x, 910x, 920x, 940x, 970x.
DAYTON: Applied Research Laboratories, Jamesburg Road.	010b, 020b, 030b, 800abct, 810abct, 820abct, 830abct, 870abct, 880abct, 890abct.
ELIZABETH: Charles Martin & Company, Bayway Terminal Building.	See New York City.
HOBOKEN: United States Testing Co., Inc., 1415 Park Avenue. (Branches at Boston; Chicago; New York; Philadelphia; and Woonsocket, R. I.)	000b, 010bc, 020bc, 040abespt, 050abcipst, 060abcehipst, 070abept, 090acit, 100abcip, 110abcip, 120abcip, 130abcip, 140abcip, 150abcip, 160abcip, 170abept, 200abcehipst, 210abcehp, 220bccht, 230abchipste, 240abct, 260abept, 280abcpst, 290abcept, 300abcehilpst, 310abcehilpst, 320abcehilpst, 330abcehilpst, 340abcehilpst, 360abcehilpst, 370abcehilpst, 390abcehilpst, 700aps, 710aehips, 720aehips, 730aehips, 740eilps, 750eilps, 760eilps, 770eilps, 780eilps, 790eilps, 800bcehps, 810bct, 820c, 830bct, 840acehips, 850abc, 860acip, 870abcpst, 880abcpst, 890abcpst, 910aeps, 920ap, 930acips, 940cip, 950cpis, 970cips, 980cips, 990acehips. See New York City.
Lodi: Molnar Laboratories, 205 Main Street.....	500achp, 510acip, 530acp, 600ip, 800acp, 840achp.
MONTCLAIR: Howard Inspecting and Testing Laboratory, Inc., 10 Sherwood Street.	
NEWARK:	
The Clinical Laboratory, 33 Lincoln Park, Zone 2....	020abc, 090abc, 170abc, 880abc.
Gray Industrial Laboratories, 961 Frelinghuysen Avenue.	040c, 090c, 140c, 170c, 600ex, 610ex, 630ex, 640ex, 650ex, 680ex, 690ex, 800c, 820c, 830c, 840c, 850c, 870c, 890c.
G. B. Hogaboomb Jr. & Co., 44 East Kinney Street, Zone 2.	660acim.
SOUTH ORANGE: The Gravelle Laboratory, 114 Prospect Street.	020ab, 040a, 060a, 070a, 090a, 100a, 140a, 150a, 160ab, 170ab, 200a, 210a, 220a, 230a, 240a, 260a, 280a, 290a, 300a, 310a, 320a, 330a, 340a, 360a, 370a, 390a, 470a, 480a, 490a, 500a, 510a, 520a, 530a, 540a, 550a, 570a, 590a, 600am, 610am, 620am, 630am, 640am, 650am, 660am, 680am, 690am, 800a, 810a, 830a, 840a, 850a, 870a, 880a, 890a, 930a, 990a.

**NEW MEXICO**

ALBUQUERQUE: New Mexico State Highway Department Testing Laboratory, c/o University of New Mexico.	500cp, 510cp, 600cp.
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**NEW YORK**

BROOKLYN:	
Biological Laboratories, 16 Clinton Street, Zone 2....	000abc, 010abc, 020abc, 040abc, 070b, 090bc, 170bc, 810abc, 880bc, 910b.
Ekroth Laboratories, Inc., 60 Freeman Street, Zone 22.	000abceist, 010abcist, 020abcist, 030abcist, 040abcpst, 050abc, 060abcpst, 070abcpst, 090abcipst, 100abcipst, 110abcipst, 120abcipst, 130abcipst, 140abcipst, 150abcipst, 160abcipst, 170abcipst, 200abcipst, 210abcipst, 220abcipst, 230abcipst, 240abcipst, 260abcipst, 280abcipst, 290abcipst, 300abcis, 310abcist, 320abcist, 330abcist, 340abcist, 360abcist, 370abcist, 390abcist, 400abcist, 410abcist, 420abcist, 430st, 470abcist, 480abcst, 490abchipst, 500acs, 510acis, 520bchis, 530abchipst, 540abchps, 550acps, 560acps, 570achps, 590abchipst, 600acs, 610acs, 620acs, 630acs, 640acs, 650acs, 660acs, 670acs, 680acs, 690achipst, 800abcest, 810abest, 820abcpst, 830abcpst, 840abchipst, 850abcs, 870abcipst, 880abchipst, 890abchipst, 910cips, 920acip, 930acips, 940abcipst, 950abchipst, 970acipst, 980abcpst, 990abchipst.

<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued****NEW YORK—Continued**

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
BROOKLYN—Continued. W. S. Purdy Co., Inc., 18 Bridge Street, Zone 1.....	040c, 500cp, 800cp, 830cp, 870cp, 880cp, 890cp.
CHARLES C. KAWIN CO., 110 Pearl Street, Zone 2.....	See Chicago.
THE MOORE LABORATORY, 65 South Division Street.....	040acp, 050acp, 060acp, 120acip, 140aci, 160acp, 230acip, 250acp, 500acp, 820acp, 830acp, 850acp, 870acp, 890acip.
PITTSBURGH TESTING LABORATORY, 257 Franklin Street, Zone 2.	See Pittsburgh.
LONG ISLAND CITY: Food Research Laboratories, Inc., 48-14 Thirty-third Street.	000abct, 010abct, 020abct, 030abct, 040abct, 090abct, 100abct, 110abct, 120abct, 130abct, 140abct, 150abct, 160abct, 170abct, 210bt, 220abct, 230bt, 260abct, 280bt, 290abct, 300bt, 310bt, 320bt, 330bt, 340bt, 360bt, 370bt, 390bt, 400bt, 410bt, 420bt, 430bt, 470bt, 480bt, 490bt, 800t, 810abct, 820t, 830t, 840t, 850t, 860t, 870abct, 880abct, 890t. 710ips (radio).
Radio Engineering Laboratories, Inc., 35-54 Thirty- sixth Street, Zone 1.	See New York City.
MARINER'S HARBOR (Staten Island): Wallerstein Labora- tories.	010abc, 020abc, 030abc, 040abcp, 060abc, 070abc, 100abc, 110abc, 120abc, 130abc, 140abcp, 150ac, 160ac, 170abc, 200acp, 210acp, 220acp, 240ac, 280ac, 300abcp, 310abcp, 320abcp, 330abcp, 360abcp, 370abcp, 470acp, 500acp, 510acp, 530c, 540c, 570c, 600acp, 610acp, 620acp, 630c, 640c, 650c, 660c, 680c, 800c, 810abcp, 820c, 830c, 850abc, 870act, 880cb, 980b.
NEW YORK CITY (See also Brooklyn and Long Island City): Associated Analytical Laboratories, 265 Lexington Avenue, Zone 16.	020ac, 030ci, 040abcilps, 070c, 110abci, 130abci, 140abcilps, 150c, 160ci, 200ci (latex), 210c, 330ci, 500abcilps, 570c, 720il, 780il, 790il, 800cips, 830c, 840ci, 850c, 860c, 870c, 890c, 990ci.
Charles V. Bacon, 117 Liberty Street, Zone 6.....	500ci, 510ci, 530ci, 550ci, 570ci, 590ci, 600ci, 610ci, 620ci, 630ci, 640ci, 650ci, 660ci, 680ci, 690ci, 840ci.
John H. Banks Laboratories, Inc., 106 Water Street, Zone 5.	010cbtap, 020cbtap, 030cbtap, 040ctap, 090cbtap, 100ctap, 110ctap, 140cap, 150ctap, 160ctap, 170ct, 200ca, 210c, 220ca, 230c, 240cap, 250cap, 260c, 280cap, 290ctap, 500c, 510c, 530c, 540c, 570c, 590c, 630c, 640c, 650c, 680c, 690c, 800c, 810cb, 820c, 830c, 840c, 850c, 870cb, 880cb, 890c.
BENDNER & SCHLESINGER, INC., Third Avenue and Tenth Street, Zone 3.	060cpa, 070ahi, 200aips, 230c, 280c, 300achips, 310achips, 320- achips, 330achips, 340achips, 360achips, 370achips, 400cpa, 470cpa, 490epa, 900cpas.
BETTER FABRICS TESTING BUREAU, INC., 101 West Thirty- first Street, Zone 1.	See Brooklyn.
BIOLOGICAL LABORATORIES.....	040cp, 050cp, 060cp, 070cp, 140cp, 230c.
THE BLAIR LABORATORY, 143 West Twentieth Street, Zone 11.	020bc, 500cp, 700cis, 720cps, 880bcips.
BULL AND ROBERTS, 117 Liberty Street, Zone 6.....	See Chicago.
CONTAINER TESTING LABORATORIES, INC., 45 East Twenty-second Street.	See Philadelphia.
DALARE ASSOCIATES, 120 Liberty Street, Zone 6.....	200cp, 210cp, 280p, 470cp, 520p, 530p, 540p, 550p, 600pm, 840cp.
CHARLES DAVIDOFF, 198 Broadway, Zone 7.....	140acp, 470cp, 500achips, 510acips, 790is, 800achips, 820cp, 830cp,
A. W. DOW, INC., 801 Second Avenue, Zone 17.....	840acip, 870cp, 880c, 890c.
EKROTH LABORATORIES, INC.....	See Brooklyn.
ELectrical Testing Laboratories, Inc., 2 East End Avenue at Seventy-ninth Street, Zone 21.	020c, 040ac, 060acp, 090a, 110c, 130ac, 140cp, 150c, 160c, 170ac, 200aceips, 210cp, 230ac, 260ch, 280cps, 290cps, 300acps, 310cps, 320acps, 330acps, 340acps, 360aeips, 370acps, 390acps, 400ips, 410cp, 420cp, 430p, 470acipseh, 480acipseh, 490acipseh, 500chps, 510acchips, 520acchips, 530acchips, 540chcp, 550- acehips, 560aiep, 570acep, 590ch, 600aceimps, 610aceimps, 620aceimps, 630aceimps, 640aceimps, 650aceimp, 660ceimp, 670cips, 680acmps, 690cmpls, 700ips, 710acechips, 720p, 740p, 750ps, 760ip, 780ps, 790acechips, 800cpe, 810c, 820c, 830c, 840acechips, 850c, 870acips, 880c, 890c, 910aeps, 920p, 930acips, 940cp, 950ps, 970cp, 980ps, 990acechips.
EVANS RESEARCH AND DEVELOPMENT CORPORATION, 250 East Forty-third Street, Zone 17.	040acs, 070act, 140acps, 200aceps, 210acps, 220acps, 230acps, 260csi, 360acips, 370acips, 390acips, 530ec, 540acs, 550acs, 560acs, 630acs, 660ac, 690ac, 800c, 810abc, 820c, 830cs, 840cs, 860acp, 870acipst, 880c, 890aic, 910cis, 950acis.
FOOD RESEARCH LABORATORIES, INC.....	See Long Island City, above.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## NEW YORK—Continued

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
NEW YORK CITY (See also Brooklyn and Long Island City) —Continued.	
Fuel Engineering Co. of New York, 215 Fourth Avenue, Zone 10.	500acp (coal, petroleum).
George Fuller, 320 Broadway, Zone 7.....	300acips, 310acips, 320acips, 330acips, 340acips, 360acips, 370acips, 390acips (rayon, nylon, vinyon, etc.).
Hatch Textile Research, 25 East Twenty-sixth Street, Zone 10.	300acips, 310acips, 320acips, 330acips, 340acips, 360acips, 370acips, 390acips.
Robert W. Hunt Co., 59 Murray Street, Zone 7.....	See Chicago.
Industrial Testing Laboratories, 315 Fourth Avenue, Zone 10.	040acp, 100acp, 110acp, 140acp, 150acp, 160acp, 170acp, 220acp, 260c, 280ac, 290ac, 500acp, 630c, 640c, 650c, 680c, 810c, 820c, 830c, 850c, 870c, 880c, 890cp.
Johnson-Salisbury, Inc., 254 West Thirty-first Street, Zone 1.	010abci, 090bcip (glue, gelatin), 100bc, 120bi, 130bi, 150c, 160cip, 170c, 210ci, 230c, 280aps, 810best.
Laboratory of Industrial Hygiene, Inc., 76 Madison Avenue, Zone 16.	000abct, 010abct, 020abct, 040abct, 090abct, 100abct, 110abct, 120abct, 160abct, 170abct, 220abct, 290abct, 810abct, 880abct, 890abct.
Ledoux & Company, Inc., 155 Avenue of the Americas, Zone 13.	140ci, 500c, 510c, 520c, 530c, 540c, 550c, 570c, 590c, 600c, 610c, 620c, 630c, 640c, 650c, 660c, 680c, 690c, 830c, 840c, 850c, 890c.
Chas. Martin & Co., Produce Exchange Annex, 2 Broadway, Zone 4. (Branches at Elizabeth, N. J.; Corpus Christi and Houston, Texas; and New Orleans, La.).	040cp, 500cp, 800cp.
Molnar Laboratories, 211 East Nineteenth Street, Zone 3. (Branches at Lodi, N. J.; Black Lick, Pa.)	010abct, 020abct, 030abct, 040abc, 070act, 100abc, 220abct, 800abct, 810abct, 820abct, 830abct, 870abct, 880abct, 890abct.
New York Produce Exchange, 2 Broadway, Zone 4....	010cp, 020c, 030c, 040cpsa, 100cpsa, 110cpsa, 120cp, 130cpsa, 140cpsa, 150cpsa, 160cpsa, 170cpsa, 210c, 220c, 240c, 260c, 280c, 290c, 690c, 810cp, 820cp, 830cp, 840cp, 850cp, 870cp, 880cp, 890cp.
New York Testing Laboratories, Inc., 80 Washington Street, Zone 6.	010abc, 020abc, 040abcehilp, 050abceipt, 060abceipt, 070abceipt, 090abceipt, 100abct, 110abct, 140abceipt, 150c, 160abct, 170abct, 200abchipx, 210c, 220abci, 230abci, 260abci, 280abci, 290abci, 300abcechip, 310abcechip, 320abcechip, 330abcechip, 340abcechip, 360abcechip, 370abcechip, 390abcechip, 400cip, 410cip, 420cip, 430cip, 470cipa, 480cipa, 490cipa, 500acchilps, 510acp, 520acehips, 530acehips, 540acechips, 550acechips, 560acehips, 570acehips, 590acehips, 600cehimp, 610cehimp, 620cehimp, 630cehimp, 640cehimp, 650cehimp, 660cehimp, 670cehimp, 680cehimp, 690cehimp, 700ips, 710ips, 720eips, 730eips, 740eips, 750eips, 760eips, 770eips, 780eips, 790eips, 800acehip, 810act, 820ci, 830ci, 840cehips, 850ci, 860cip, 870abceipt, 880abct, 890abct, 910eips, 920ips, 930cip, 940ip, 950bchips, 970chips, 980aips, 990achips.
Please Laboratories, Inc., 39 West Thirty-eighth Street, Zone 18.	010cb, 020cb, 030cb, 040c, 050c, 060c, 070c, 090cbt, 100c, 110c, 120capi, 130capi, 140cb, 150cb, 160cbi, 170cbi, 200ct, 210ct, 220ct, 230ct, 260ct, 280c, 290cbti, 500cbt, 530c, 540c, 570ct, 590cbti, 800cbt, 810cbt, 820ct, 830ct, 840ct, 850ct, 870abctsi, 880abctsi, 890abctsi, 950cbti, 970ct, 980b, 990abctis.
Lucius Pitkin, Inc., 47 Fulton Street, Zone 7.....	170ac, 500ac, 510ap, 520achp, 530achp, 540achp, 550ac, 560ac, 570ac, 590ac, 600acmp, 620acmp, 630acmp, 640acmp, 650acmp, 660acmp, 680acmp, 690acmp, 820ac, 830ac, 840ac, 850c, 880ac, 890c, 910aip, 950acip, 970acip.
Pittsburgh Testing Laboratory, 421 Canal Street, Zone 13.	See Pittsburgh.
W. S. Purdy Co. Inc.....	See Brooklyn, p. 14.
Radio Engineering Laboratories, Inc.....	See Long Island City, p. 14.
Schwarz Laboratories, Inc., 202 East Forty-fourth Street, Zone 17.	010abc, 020ac, 030bc, 040acp, 100ac, 110ac, 120c, 130ac, 140c, 150abci, 160ac, 170abcis, 210ac, 220ac, 240ab, 290abc, 790is (brewery), 810c, 880c.
Scil, Putt & Rusby, Inc., 16 East Thirty-fourth Street, Zone 16.	130abct, 140abct, 150abct, 170abct, 210abct, 220abct, 230abct, 240abct, 260ac, 290abct, 490ct, 800abct, 810abct, 830abct, 870abct, 890abct.
Silk Grading and Testing Laboratories, 22 West Twenty-sixth Street. (See Textile Testing and Research Laboratories, p. 16).	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## NEW YORK—Continued

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
<b>New York City</b> (See also Brooklyn and Long Island City) Continued. Foster D. Snell, Inc., 29 West Fifteenth Street, Zone 11.	010bct, 020abct, 030bct, 040acpt, 050acp, 060acp, 070acp, 090bct, 100ct, 110ct, 120abct, 130act, 140acpt, 150cpt, 160bcp, 170bcp, 200cp, 210cp, 220cpt, 230cp, 240acpt, 260abc, 280bcp, 290abcp, 300acps, 310acps, 320acps, 330acps, 340acps, 360acps, 370acps, 390acps, 400ai, 410ai, 420ai, 430acpsi, 470abcp, 480acpi, 490abepsi, 500chip, 510cip, 520cip, 530cip, 540cip, 550cip, 560cip, 570cip, 590cp, 600c, 610ci, 620ci, 630ci, 640ci, 650ci, 660ci, 680ci, 690ci, 800abcipt, 810abct, 820acp, 830acp, 840acp, 850acp, 860c, 870abcipt, 880abcipt, 890abcipt, 930acps, 950acps, 970acps, 990acps.
Stillman and Van Siclen, Inc., 23 West Forty-seventh Street, Zone 19.	020c, 040cp, 090c, 100cp, 110c, 140cp, 170cip, 200cp, 210cp, 220cp, 230c, 260c, 280cp, 410i, 500cip, 510cip, 530cip, 540c, 590c, 800cip, 830c, 840cip, 870c, 880c, 890c.
Stillwell and Gladding, Inc., 130 Cedar Street, Zone 6.	010c, 020c, 030c, 040cp, 050c, 090c, 100c, 110c, 120cp, 130cp, 140cp, 150cp, 160cp, 170c, 200c, 210c, 220cp, 260c, 280c, 290c, 300i, 310c, 320c, 330i, 340i, 360i, 370i, 390i, 470cpa, 500cp, 510cp, 530c, 540c, 570c, 590c, 600c, 620c, 630c, 640c, 650c, 680c, 690c, 800c, 810c, 820c, 830c, 840c, 850c, 860c, 870c, 880c, 890c.
Textile Testing and Research Laboratories, 22 West Twenty-sixth Street. Sam Tour & Co., Inc., 44 Trinity Place, Zone 6.	060s, 070s, 300acips, 310acips, 320acips, 330acips, 360acips, 370acips, 390acips.
Unified Laboratories, Inc., 1775 Broadway, Zone 19.... United States Testing Co., Inc., 1450 Broadway..... Walker & Whyte, Inc., 409 Pearl Street, Zone 7.....	470acp, 480acips, 490acips, 500aips, 510achps, 540achps, 550achps, 560aipsx, 590aipsx, 600aceimpxs, 610impss, 620aceimpxs, 630aceimpxs, 640aceimpxs, 650aceimpxs, 660aceimpxs, 670aceimpxs, 680aceimpxs, 690aceimpxs, 700ips, 710ips, 720ips, 730ips, 740ips, 750ips, 760ips, 770ips, 780ips, 790ips, 840achips, 950ips, 970ips.
Wallerstein Laboratories, 180 Madison Avenue, Zone 16. (Branch at Mariner's Harbor, Staten Island). A. W. Williams Inspection Co., 90 West Street, Zone 6.	810bcp.
OZONE PARK: Polytechnique Laboratories, 13049 Lefferts Boulevard, Zone 16.	See Hoboken.
ROCHESTER: National Testing Laboratories, Inc., 135 University Avenue.	510ci, 530ci, 550ci, 570ci, 590ci, 620ci, 630cim, 640cim, 650cim, 660ci, 680c, 690ci.
WATERTOWN: F. M. Williams, Park Place.....	100acp, 110c, 160abcp, 170abcips, 280acps, 390acip.
	See Mobile.
	010abct, 020abct, 030bct, 040c, 050c, 060c, 070ct, 090abc, 100ac, 110c, 120c, 130c, 140c, 150c, 160ct, 170ct, 200c, 210c, 220c, 230c, 240c, 260c, 280c, 300ac, 310ac, 320ac, 330ac, 360ac, 370ac, 390ac, 400ac, 420ac, 500c, 510ac, 520c, 530c, 540c, 550ac, 560c, 570c, 590c, 600cm, 610cm, 620cm, 630cm, 640cm, 650cm, 660c, 680c, 690c, 800c, 810c, 820c, 830c, 840c, 850c, 870c, 880c, 890c.
	010abc, 020abc, 030abc, 040abc, 090abc, 100abc, 110abc, 120abc, 130abc, 140abc, 150abc, 160abc, 170abc, 500c, 510c, 520c, 530c, 540c, 570c, 590c, 630c, 640c, 650c, 680c, 850c, 870c, 880c, 890c, 470c (wood pulp).

## NORTH CAROLINA

GREENSBORO: Pittsburgh Testing Laboratory, 209 Bellemeade Street.	See Pittsburgh.
WILMINGTON: Law & Co., 16 Princess Street, (Branch at Atlanta, Ga.)	010c, 020c, 040c, 090c, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 210c, 220c, 240c, 260c, 280c, 290c, 500c, 510cp, 530cp, 570c, 590cp, 600c, 610c, 620c, 630c, 640c, 650c, 680c, 690cp, 800c, 810c, 820c, 830c, 840c, 850c, 870c, 880c, 890c, 990c.

## OHIO

AKRON: V. L. Smithers Laboratories, 2706 First Central Tower, Zone 8.	200acp, 210acp, 300p, 710acep (storage batteries).
CADIZ: The Textor Laboratories.....	See Cleveland.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## OHIO—Continued

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
<b>CINCINNATI:</b> F. C. Broeman & Co., 1926 Race Street, Zone 10.....	010cpa, 020cpa, 030cpa, 040cpa, 050c, 060cp, 090cpa, 100cpa, 110cpa, 120cpa, 130cpa, 140cpa, 150cpa, 160cpa, 170cpab, 200c, 210c, 220c, 230c, 240c, 250c, 260c, 280cp, 290c, 300cp, 330cp, 340cp, 360cp, 370cp, 390cp, 400c, 470cpa, 490cp, 500cip, 510c, 520c, 530c, 540c, 550c, 560c, 570c, 590c, 600cip, 610c, 620c, 630c, 640cp, 650c, 660c, 680c, 690c, 800c, 810c, 820c, 830c, 840cpa, 850c, 860c, 870c, 880c, 890c, 970cp.
The H. C. Nutting Co., 4120 Airport Road, Zone 26. (Branch at Miami.)	100c, 170c, 400acpi, 410acpi, 470c, 500cip, 510cip, 530cpai, 540cp, 570cp, 590cp, 600cpai, 610cpai, 620cp, 630cp, 640cp, 650cp, 680cp, 800cp, 820c, 830c, 840c, 850c, 870c.
Louis G. Robinson Laboratories, 219 McFarland Street, Zone 1.	010abet, 020abet, 030abet, 040abet, 060abet, 090abet, 100abc, 110abc, 120abc, 130abc, 140abet, 150abc, 160abet, 170abet, 210abc, 220abc, 260abc, 280abc, 290abc, 500achms, 510acpm, 520acpm, 540acpm, 550acms, 570acms, 590acms, 600acpm, 610acpm, 620acpm, 630acpm, 640acpm, 650acpm, 680acpm, 690acpm, 800ac, 810ac, 830ac, 840ac, 850ac, 870ac, 880ac, 890ac.
<b>CLEVELAND:</b> American Gas Association Testing Laboratories, 1032 East Sixty-second Street, Zone 14. (Branch at Los Angeles.)	990acheimpst (gas appliances and accessories).
Commercial Testing and Engineering Co., 1514 Prospect Avenue, Zone 15.	See Chicago.
The Cremer-Case Co., 1200 West Ninth Street, Zone 13.	500e (coal), 600c, 690c.
Crowell & Murray, Inc., 740 Superior Avenue West, Zone 13.	500c, 510c, 530c, 540c, 570c, 590c, 600c, 610c, 620c, 630c, 640c, 650c, 660c, 680c, 690c.
The James H. Herron Co., 1360-64 West Third Street, Zone 13.	040clp, 060p, 140clp, 210cp, 400ip, 410ip, 420ips, 430ips, 500cip, 510cip, 520ch, 530chip, 540chip, 550cp, 570cp, 590cp, 600cimpx, 610cimpx, 620cimpx, 630cimpx, 640cimpx, 650cimpx, 660cimpx, 680cimpx, 690cimpx, 700i, 710i, 730i, 740i, 750i, 760i, 780i, 790i, 800cip, 820c, 830c, 840cip, 850c, 870c, 880c, 890c, 910is, 940is, 950is, 980is.
Pittsburgh Testing Laboratory, 1751-3 Chester Avenue, Zone 14.	See Pittsburgh.
The Textor Laboratories, 1627 East Twenty-fifth Street, Zone 14. (Branches at Cadiz, Ohio; Clarksburg, W. Va.)	020c, 040c, 110c, 140c, 150c, 170c, 500cip, 510cip, 530c, 540c, 550c, 560c, 570c, 590c, 600cipn, 620cimpx, 630cp, 640cpm, 680cimpx, 690cpx, 800cp, 820c, 830c, 840cp, 850c, 860c, 870c, 880c, 890c, 950cp.
COLUMBUS: Columbus Vaccine Co., 765 East Hudson Street, Zone 2.	220bet, 810bet, 870bet.
DAYTON: Bowser Morner Testing Laboratories, 135-143 Bruen Street, P. O. Box 51, Zone 1.	020cb, 040cp, 100cp, 110c, 140cp, 160c, 170c, 200cp, 210acp, 260c, 280cp, 290cap, 300acp, 310acp, 320acp, 330acp, 340acp, 360acp, 370acp, 390acp, 470acp, 490acp, 500chips, 510cip, 530chp, 540acps, 550acp, 570ac, 590acp, 600achipsmx, 610achipsmx, 620achipsmx, 630achipsmx, 640achipsmx, 650acp, 660ac, 680acp, 690achipsmx, 710ips, 800acips, 820acp, 830acp, 840acips, 850c, 860acs, 870c, 880cis, 890acips, 910acip, 930acps, 950ps, 990acips, 510ac, 520acp, 530c, 590c.
LANCASTER: The Sharp-Schurtz Co., 301-303 Lincoln Avenue.	See Chicago.
TOLEDO: Commercial Testing and Engineering Co., 1118 Madison Avenue, Zone 2. Toledo Testing Laboratory, 1810 North Twelfth Street, Zone 2.	500cip, 510cip, 530cip, 600cipe, 640cpe, 650cp, 680cp, 840cp.

## OKLAHOMA

OKLAHOMA CITY: Oklahoma Testing Laboratories, 1145 Northwest Second Street, Zone 6.	020ac, 040acp, 090ac, 110ac, 140acp, 150ac, 160c, 170ac, 210c, 220c, 230c, 280c, 290c, 300ac, 310ac, 320ac, 330ac, 340ac, 360ac, 370ac, 390ac, 400aip, 410aip, 420aip, 470ac, 490ac, 500cips, 510cipa, 520cs, 530acips, 540acs, 550ac, 570ac, 590c, 600acimpx, 610acimpx, 620acimpx, 630acimpx, 640acimpx, 650acip, 660ac, 680acipm, 690acimpx, 800cips, 810c, 820c, 830c, 840acips, 850ac, 870c, 880cis, 890acip, 910acimpx, 930acipms, 940acipms, 950acipms, 970acipms, 990acipms.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued****OKLAHOMA—Continued**

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
PICHER: The Bruce Williams Laboratories, 109 South Connell Avenue.	<i>See Joplin, Mo.</i>

**OREGON**

EUGENE: A. W. Williams Inspection Co., 621 Willamette Street. PORTLAND: Bureau of Health Laboratory, 1220 SW Fifth Avenue, Zone 4. Central Inspection Bureau, 514 Terminal Sales Building, Zone 4. Charlton Laboratories, 2340 SW Jefferson Street, Zone 7.  SALEM: Oregon State Highway Commission Laboratory, Engineering Laboratories Building.	<i>See Mobile.</i>  000abt, 010abct, 020abct, 030abct, 100t, 120abt, 150abt, 160abt, 170bct. 400pi, 410pi, 600pi, 610pi, 620pi, 640pi.  010bc, 020bc, 040ci, 090bc, 100bc, 110c, 120bc, 130c, 140ci, 160bc, 170bc, 220c, 410cp, 500cp, 510cp, 530cp, 570c, 600cimp, 610cimp, 620cimp, 630cimp, 640cimp, 650cimp, 680cimp, 690cimp, 810bc, 840cp, 870c, 880bcp, 890cp. 400pi, 410pi, 500p, 510cp, 530p, 600cpi, 610pi, 620cpi, 640cpi, 690cpi, 840cp, 890cp.
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**PENNSYLVANIA**

BLACK LICK: Molnar Laboratories.....	<i>See New York City.</i>
CRESSON: Warner Laboratories, 617 First Street.....	500cp, 510c, 530cph, 540c, 570c, 590c, 690c.
DARBY: A. C. Herting, 15 North Front Street.....	020abct, 120abct, 170abct, 210abct, 810abct, 830abct, 870abct.
HARRISBURG: Andrew S. McCreath and Son, 236-42 Liberty Street.	500ch, 510c, 530c, 570c, 600c, 610c, 620c, 640c, 650c, 680c, 690ci.
JENKINTOWN: Graham, Crowley and Associates, Inc., 473 York Road.	<i>See Chicago.</i>
MALVERN: J. Bishop & Co., Platinum Works.....	660c, 690c.
PHILADELPHIA:	880c.
American Water Softener Co., S.E. Cor. Lehigh Avenue and Fourth Street.	100c, 880abc.
Bell and Beltz, 3340 North Broad Street.....	880abcips.
W. H. & L. D. Betz, Gillingham and Worth Streets, Zone 24.	500c, 510c, 520c, 530c, 540c, 550c, 570c, 590c, 600c, 610c, 620c, 630c, 640c, 650c, 680c, 690c, 840c.
Booth, Garrett & Blair, 228 South Ninth Street, Zone 7.	500chipts, 510cp, 590cp, 800cpst, 840c, 880ct.
Brewer & Gardner, 1505 Race Street, Zone 2.....	010bc, 020bc, 030c, 040c, 060c, 070c, 090c, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170cb, 200c, 220c, 230c, 260c, 280c, 290c, 300c, 340c, 370c, 390c, 490c, 500c, 510c, 530c, 540c, 570c, 600c, 610c, 620c, 630c, 640c, 650c, 680c, 690c, 800c, 810c, 820c, 830c, 840c, 850c, 870c, 880c, 890c, 900c, 970c.
Joseph S. Carlitz, S.E. Cor. Front and Race Streets.....	040cpa, 500cp, 510cp, 520c, 530c, 540c, 570c, 590c, 600acmp, 610acmp, 620acmp, 630acmp, 640acmp, 650acmp, 660ac, 680- acmp, 690acmp, 800acp, 840acp, 870acp, 880acps, 890acp.
W. B. Coleman & Co., Ninth Street and Rising Sun Avenue, Zone 40.	300acips, 310acips, 320acips, 340acips, 360acips, 370acips, 390acips, 470aips, 490aips, 940aips, 990aips.
Consumers' Testing Laboratories, 725 Filbert Street, Zone 6.	040cp, 060cp, 140cp, 170c, 200cp, 260ac, 290ac, 390acp, 400cip, 410ip, 430p, 470acp, 490acp, 500cp, 510cp, 520cp, 530cp, 540cp, 550cp, 570c, 590cp, 610cp, 620cp, 630cp, 640cp, 650cp, 660ac, 680cp, 690cp, 710ips, 740ips, 750ips, 760ips, 780ips, 790ips, 800cip, 810cip, 820cip, 830cip, 840cip, 850cip, 860cip, 870cip, 880cip, 890cip, 970esp, 990cip.
E. L. Conwell & Co., 2024 Arch Street, Zone 3. (Branch at Baltimore, Md.)	000abct, 010abct, 020abct, 030abct, 040abct, 090abct, 100abct, 110abct, 120abct, 130abct, 140abct, 150abct, 160abct, 170abct, 520cp, 540cp, 550cp, 600cp, 610cp, 620cp, 630cp, 640cp, 650cp, 660cp, 680cp, 690cp, 810abcp, 820abcp, 830cp, 850c, 870bep, 880bcp, 890bcp.
Dalare Associates, 2300 Locust Street, Zone 3. (Branches at Baltimore, New York, and Washington.)	020c, 040aci, 090acp, 100ac, 110ac, 140acip, 160ci, 210c, 280c, 500cip, 510c, 530c, 570cp, 600aci, 610aci, 620ci, 630aci, 640aci, 650aci, 680aci, 690aci, 800c, 820c, 840c, 850ci, 870aci, 880c.
Frank R. Gunn Co., Ontario and Brabant Streets, Zone 34.	040c, 090c, 110c, 400c (wood pulp), 570c, 850c, 870c.
Hamlin and Morrison, 216 South Second Street. (Branch at Baltimore.)	040cla, 050ca, 060csa, 140cal, 300c, 340c, 360c, 370c, 390cal, 500cal, 600ca, 610ca, 620c, 630c, 640c, 650c, 820c, 830ca, 870ca.
E. F. Houghton & Co., 303 West Lehigh Avenue, Zone 33. (Branches at Chicago and San Francisco.)	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## PENNSYLVANIA—Continued

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
<b>PHILADELPHIA</b> —Continued.	
Industrial By-Products and Research Co., 800 Market Street, Zone 5.	020abc, 060ps, 150abcp, 160abcp, 170abcp, 200abcp, 230cs, 280acp, 290acp, 300abchips, 310abchips, 320abchips, 330abchips, 340abchips, 360abchips, 370abchips, 390abchips, 470acps, 490acps, 830c, 840cp, 870abcp, 890abcp, 990s. 000abct, 010abct, 020abct, 030abct, 040abct, 090abct, 100abcpst, 110abcpst, 120abcpst, 130abcpst, 140abcpst, 150abcpst, 160abcpst, 170abcpst, 200abct, 210abct, 220abct, 260abct, 280abct, 290abct, 300bct, 310bct, 320bct, 330bct, 340bct, 360bct, 370bct, 390bct, 500acp, 520acp, 530acp, 540acp, 570acp, 590acp, 800abcpst, 810abcpst, 820abcpst, 830abcpst, 840abcpst, 850abcpst, 860abcpst, 870abcpst, 880abcpst, 890abcpst, 950acips, 970acips. See Industrial By-Products and Research Co.
LaWall and Harrisson, 1921 Walnut Street, Zone 3....	600pm, 610pm, 630pm. 060p, 390p, 410p, 470p, 510p, 600p, 610p, 620p, 630p, 640p, 650p, 680p, 690p. See Pittsburgh.
Merchandise Research Laboratories, 800 Market Street, 6th Floor, Zone 5.	600ep, 610ep, 620ep, 630c, 640c, 650c, 660c, 680c, 690c, 710es, 910es.
Metlab Co., 1000 East Mermaid Avenue, Zone 18....	010abct, 020abct, 030abct, 040c, 050abc, 060abcp, 070abcp, 100abct, 110abct, 120abct, 130abct, 140bcp, 150abcp, 160abcp, 170abct, 200cp, 210c, 220abct, 230c, 260abc, 280abc, 300acp, 310acp, 320acp, 330acp, 340acp, 360acp, 370acp, 390acp, 400ep, 430c, 470cp, 490cp, 500cp, 510c, 520c, 530c, 540c, 550c, 560c, 570c, 590c, 800ac, 810abct, 820c, 830c, 840abc, 850c, 860c, 870c, 880bc, 910p, 930cp, 970cp.
Tinius Olsen Testing Machine Co., 500 North Twelfth Street, Zone 23.	020abct, 140abcp, 150abcp, 160abcp, 170abcp, 210bcp, 300bc, 310bc, 360bc, 370bc, 390bc, 400acips, 800abcpst, 810abcpst, 820abcpst, 870abcpst, 880abcpst, 890bct, 930c.
Pittsburgh Testing Laboratory, 238 Cherry Street, Zone 6.	500c, 510c, 530c, 540c, 570c, 590c, 600c, 610c, 620c, 630c, 640c, 650c, 680c, 690c. See Hoboken.
Rubicon Co., Ridge Avenue at Thirty-fifth Street, Zone 32.	020abc.
Samuel P. Sadler & Son, Inc., 210 South Thirteenth Street, Zone 7.	400i, 490i, 500c, 510cp, 520c, 540c, 550c, 590c, 600cpi, 620c, 630c, 640cpi, 650c, 660c, 680c, 690c, 700pi, 720i, 740i, 750i, 760i, 780i, 840c, 850c, 870c, 880c, 890c. See Chicago.
Samson Laboratories, 1619 Spruce Street.....	020c, 040cl, 060ps, 090c, 110c, 140cl, 150c, 160c, 170c, 200cps, 280cp, 300cps, 310ps, 320ps, 330ps, 340hp, 360chps, 370ps, 390pc, 400hips, 410hips, 420hips, 430ips, 470p, 480p, 490p, 500cipls, 510cipls, 520chips, 530chips, 540cps, 550cp, 560cp, 570cpl, 590cp, 600cipmx, 610cipmx, 620cipmx, 630cipmx, 640cipmx, 650cpcm, 660cpcm, 670cpcm, 680cpcm, 690cpcm, 700psi, 710psi, 720psi, 730psi, 740psi, 750psi, 760psi, 770psi, 780psi, 790psi, 800cips, 820c, 830c, 840cips, 850c, 860cip, 870cs, 880c, 890c, 910cipsm, 920cpcm, 930cps, 940cp, 950cipsm, 970cipsm, 980cpc, 990cpc.
Smith, Rudy & Co., 20 North Third Street, Zone 6....	010bct, 020abct, 040bcp, 060c, 100c, 110c, 140cp, 160c, 170bc, 200cp, 210cp, 470cps, 490cps, 500cps, 510cps, 520cps, 530cps, 540cps, 550cps, 560cps, 570cps, 590cps, 600cps, 610cmcs, 620cmcs, 630cmcs, 640cmcs, 800cpas, 810cpas, 820cpas, 830cpas, 840cpas, 850cpas, 860cpas, 870cpas, 880cpas, 890cpas.
United States Testing Co., Inc., 601 West Susquehanna Avenue, Zone 22.	910s (standard cells). See Hoboken.
<b>PITTSBURGH:</b>	
Dairy Products Laboratory, 119 Federal Street, Zone 12.	
Gulick-Henderson Co., Inc., 524 Fourth Avenue, Zone 19. (Branch at Chicago.)	
Robert W. Hunt Co., Professional Building, Zone 22.	
Pittsburgh Testing Laboratory, Stevenson and Locust Streets, Zone 19. (Branches at New York City, Greensboro, N. C., Birmingham, Jacksonville, Tampa, Mobile, New Orleans, Houston, Dallas, St. Louis, Chicago, Indianapolis, Detroit, Cleveland, Buffalo, and San Francisco.)	
WAYNESBORO:	
The Wayne Laboratories, 17 East Main Street.....	

## RHODE ISLAND

NEWPORT: The Eppley Laboratory, Inc., 12 Sheffield Avenue.	910s (standard cells).
WOONSOCKET: United States Testing Co., Inc., 59 Social Street.	See Hoboken.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## SOUTH CAROLINA

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
CHARLESTON: Parker Laboratory, 40 Broad Street, Zone 3...	500c, 510c, 590c, 600c, 840ci, 850ci.

## TENNESSEE

CHATTANOOGA: Barrow-Agee Laboratories, Inc., 705 Poplar Street.... Emerson P. Poste, 309 McCallie Avenue, Zone 3.....	See Memphis. 010c, 020c, 040c, 100c, 170bc, 500ch, 510c, 520c, 530c, 590c, 600cmp, 610cmp, 620c, 630c, 640c, 650c, 680c, 690c, 800cip, 830c, 890c.
MEMPHIS: Barrow-Agee Laboratories, Inc., 121 South Front Street, Zone 1. (Branches at Cairo, Ill., Atlanta, Ga., Louisville, Ky., Jackson, Miss., Leland, Miss., Shreveport, La., Chattanooga and Nashville, Tenn.)	020abc, 040c, 100ac, 110ac, 140ac, 150ac, 170bc, 210c, 220c, 240acp, 290cp, 400ip, 410ip, 500ep, 510cip, 530cip, 570c, 590c, 600cip, 610cip, 620c, 630c, 640c, 650c, 680c, 690c, 800c, 810c, 820c, 830c, 840cip, 850c, 860c, 870c, 880c, 890c.
NASHVILLE: Barrow-Agee Laboratories, Inc., 64 Bridge Avenue, Zone 6.	See Memphis.

## TEXAS

CORPUS CHRISTI: Chas. Martin & Co., 2618 West Broadway..... Shilstone Testing Laboratory, Inc., 615 Old Robstown Road.	See New York City. See New Orleans.
DALLAS: Allied Analytical and Research Laboratories, 3831 Cedar Springs, Zone 4.	000bcis, 010bci, 020abci, 030bci, 040bc, 090bci, 100abci, 110c, 120bi, 130bci, 140cip, 150cia, 160cia, 170cab, 220aci, 280acp, 290aci, 300cepi, 390paic, 500cp, 570ca, 600c, 610c, 620c, 630c, 640c, 650c, 660c, 680c, 690c, 800c, 810bcit, 820c, 830c, 840c, 850c, 870bcis, 880cib, 890cib, 910s, 950bcis.
Pittsburgh Testing Laboratory, 1125 Commerce Street. Southwestern Laboratories, 1105½ Main Street..... Texas Testing Laboratories, Inc., 1416 Young Street, Zone 1. (Branch at Lubbock, Texas.)	See Pittsburgh. See Fort Worth. 010cp, 020bc, 040cp, 090c, 100c, 110c, 140ci, 160c, 170c, 410p, 500cipi, 510cipi, 530pi, 840cipi, 850c, 870cp, 880c, 890c.
EL PASO: El Paso Testing Laboratories, P. O. Box 1565.....	010ci, 020aci, 040acpi, 090acpi, 100ac, 110ac, 140acpi, 160acpi, 170ac, 210acp, 220acp, 230ac, 240ac, 280acp, 290acp, 410pi, 500acpi, 510acpi, 520c, 530acpi, 540acpi, 550cp, 570acp, 590acp, 600cp, 610cipi, 620cipi, 630cp, 640cp, 650cp, 680cp, 690cp, 800c, 820c, 830c, 840cipi, 850ac, 860c, 870c, 880c, 890c.
FORT WORTH: The Fort Worth Laboratories, 828½ Monroe Street, Zone 2.	020c, 040c, 100c, 110c, 140c, 500c, 510c, 520c, 530c, 540c, 570c, 590c, 600c, 610c, 620c, 640c, 650c, 680c, 690c, 840c, 850c, 870c, 890c.
Southwestern Laboratories, 828½ Monroe Street, (Branches at Dallas and Houston.)	020cpa, 040cpa, 100cpa, 110cpa, 120cpa, 130cpa, 140cpa, 170ca, 400ipa, 410ipa, 420ipa, 500icphl, 510ic, 530ic, 600icmpa, 610icmpa, 620icmpa, 630icmpa, 640icmpa, 650icmpa, 680icmpa, 690icmpa, 700ip, 740ip, 750icmpa, 760i, 770i, 780i, 790i, 840ica, 850ca, 870ca, 880ca, 890ca.
GALVESTON: Felix Paquin and Associates, 305½ Twenty-second Street.	020abc, 030abc, 040c, 090c, 100c, 110c, 120abc, 130abc, 140c, 150c, 160c, 170bc, 290abc, 320ac, 330ac, 360a, 370a, 490c, 500c, 510c, 530c, 570c, 600c, 610c, 630c, 640c, 650c, 680c, 800c, 820c, 840c, 850c, 870c, 880abc.
HOUSTON: Houston Laboratories, 1206½ Preston Avenue, P. O. Box 132, Zone 1.	020bc, 040c, 090c, 100c, 110c, 140c, 150c, 160c, 170c, 500cp, 510c, 530c, 540c, 570c, 590c, 600c, 630c, 640c, 650c, 680c, 690c, 820c, 840c, 850c, 870c, 880c, 890c.
Charles Martin & Company, 1215 Dumble Street.... Pittsburgh Testing Laboratory, 317 Merchants and Manufacturers Building, Zone 2.	See New York City.
Shilstone Testing Laboratory, 301 M & M Building, Zone 2.	See Pittsburgh.
Southwestern Laboratories, 1206½ Preston Street....	See New Orleans.
LUBBOCK: Texas Testing Laboratories, Inc.....	See Fort Worth. See Dallas.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued

## UTAH

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
SALT LAKE CITY:	
Alonzo F. Bardwell, 158 South West Temple Street, Zone 12.	640c, 650c, 660c, 680c, 690c.
Black & Deason, 165 South West Temple Street, Zone 12.	500c, 530c, 570c, 590c, 600c, 610c, 620c, 630c, 650c, 660c, 680c, 690c.
Crismon & Nichols, 229 South West Temple Street, Zone 12.	500c (coal), 510c, 530c, 570c, 620c, 630c, 640c, 650c, 660c, 680c, 690c.

## VIRGINIA

NORFOLK:	See Richmond.
Froehling & Robertson, Inc., P. O. Box 642.....	020c, 040c, 090c, 100c, 110c, 140c, 170c, 290c, 400acip, 410acip, 420acip, 500c, 510c, 570c, 590c, 630c, 640c, 650c, 660c, 680c, 690c, 800c, 810c, 820c, 830c, 850c, 870c, 880c, 890c.
McCallum Inspection Co., 132 West Berkely Avenue, Zone 6.	010bc, 020bc, 030c, 040cp, 060c, 070c, 090c, 100c, 110c, 120c, 130c, 140cp, 150ca, 160c, 170c, 210c, 220c, 260c, 280c, 290c, 300p, 320cp, 340cp, 360c, 390cp, 470cp, 500cp, 510cp, 520c, 530cp, 540c, 550c, 560c, 570c, 590c, 600cm, 610cm, 620c, 630c, 640c, 650c, 680c, 690ci, 800cp, 810c, 820c, 830c, 840cp, 850c, 860c, 870c, 880c, 890c.
Norfolk Testing Laboratories, 288 Bank Street, Zone 10.	000c, 010bc, 020ibc, 030abc, 040acp, 060ep, 090ac, 100abcp, 110acp, 120acp, 130acp, 140acp, 150acp, 160acp, 170bc, 210acp, 220c, 240acp, 260acp, 280acp, 290acp, 300acp, 310acp, 320ap, 330ap, 340ap, 370ap, 390ap, 400cp, 410cp, 420pi, 430pi, 470acp, 480p, 490acp, 500acpi, 510acpi, 520ac, 530acip, 540acp, 550acp, 570ac, 590acp, 600acpi, 610acpi, 620acp, 630acp, 640acp, 650acp, 660c, 680acp, 690ac, 800epi, 810c, 820c, 830c, 840acpi, 850cp, 860c, 870acp, 880bcp, 890ac, 910pi, 930pi, 950pi, 970cp, 990cp.
RICHMOND:	010c, 020ca, 030c, 040cpa, 050c, 060c, 090c, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 260c, 280c, 290c, 300ep, 390c, 500cpa, 510cpa, 530cpa, 540cpa, 550ca, 570c, 590cpa, 600cp, 620c, 630c, 640c, 650c, 680c, 690cpa, 800c, 820c, 830c, 840c, 850c, 870c, 880c, 890c, 970c.
Froehling & Robertson, Inc., 814 West Cary Street. (Branches at Baltimore, Norfolk, and Washington.)	
Robb & Mooney (Virginia Testing Laboratory), 5 North Sixth Street.	

## WASHINGTON

SEATTLE:	See Chicago.
Robert W. Hunt Co., 813 Arctic Building, Zone 4.....	010ciba, 020abc, 030ciba, 040acip, 050cia, 060cia, 070ia, 090acipb, 100acipb, 110acib, 120acib, 130ciap, 140ciap, 150acib, 160acib, 170acib, 200acip, 210aci, 220aci, 230aci, 240aci, 250ai, 260aci, 280acips, 290acipb, 300aci, 310aci, 320aci, 330aci, 340aci, 360aci, 370aci, 390aci, 400ip, 410ip, 420ip, 430ip, 470aci, 480i, 490aci, 500aci, 510acipm, 520aci, 530aci, 540acipm, 550acipm, 560ac, 570aci, 590aci, 600acipms, 610acipm, 620aci, 630acim, 640acim, 650acim, 660acim, 670c, 680acim, 690aci, 700sci, 710aci, 720is, 730is, 740is, 750is, 760is, 770is, 780is, 790is, 800acp, 810ca, 820ca, 830aci, 840aci, 850aci, 860ac, 870aci, 880aci, 890aci, 910aci, 940aci, 950aci, 970aci, 980aci, 990aci, 990aci, 990aci, 990aci, 990aci, 990aci,
Laucks Laboratories, Inc., 1008 Western Avenue, Zone 4.	500cp, 510cp, 520c, 530epi, 540c, 550c, 570cpm, 590cm, 600cpni, 620cpni, 630cpni, 640cpni, 650cpni, 660c, 680cpni, 690cpm.
Metallurgical Laboratory, 5200 Airport Way.....	010ca, 020ca, 030ca, 040cap, 090cap, 100ca, 110ca, 140cap, 150ca, 160ca, 170ca, 210cap, 300cap, 320cap, 330cap, 360cap, 390cap, 400ip, 410ip, 420ip, 470ca, 490cap, 500cp, 510cap, 520c, 530cip, 540cip, 550c, 560ca, 570ca, 590ca, 600ca, 610ca, 620c, 630cp, 640cp, 650cp, 660cp, 680cp, 690cp, 690ca, 740i, 760i, 780i, 790i, 800cp, 820c, 830c, 840cip, 850ci, 860c, 870c, 880c, 890c, 910ip, 940p, 970p, 990ip.
Northwest Testing Laboratories, 4132 Densmore Avenue, Zone 3.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COMMERCIAL LABORATORIES—Continued****WASHINGTON—Continued**

Name and address of laboratories	Commodities and nature of tests/research <sup>1</sup>
SPOKANE: The C. M. Fassett Co., W 19-21-23 Main Avenue, Zone 8. TACOMA: Bennett's Chemical Laboratory, 1131 Market Street.	400api, 410api, 500achilp, 510acpi, 530acp, 570c, 590c, 600cp, 610cp, 620cp, 630c, 640cp, 650c, 680c, 690cp, 800acpi, 830c, 870c, 040ac, 110c, 140c, 170c, 500c, 510cpi, 530cp, 570c, 590c, 600cpi, 620c, 630c, 640cm, 650cm, 680cm, 690cm, 800c, 850c, 870c, 880c, 890c.

**WEST VIRGINIA**

CHARLESTON: Commercial Testing and Engineering Co., 815 Quarrier Street, Zone 23. CLARKSBURG: The Textor Laboratories.....	<i>See Chicago.</i> <i>See Cleveland.</i>
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**WISCONSIN**

MADISON: State Highway Commission of Wisconsin, State Office Building, Zone 2. MILWAUKEE: The Orthmann Laboratories, Inc., 647 West Virginia Street, Zone 4.  Sommer Chemical Laboratories, Inc., 152 West Wisconsin Avenue, Suite 933, Zone 3.	400i, 500cp, 510epi, 600cp, 800cp, 840cp, 850c.  020bc, 040acp, 050abcp, 060abcp, 070abcp, 090abcp, 140abcp, 160bc, 170bc, 210cp, 230abcp, 280abcp, 360acp, 470ap, 500cp, 540acp, 570acp, 590acp, 800c, 820c, 830c, 840ac, 850ac, 870ac, 880bc, 890bc.  010c, 020c, 030c, 040c, 090c, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 500c, 510c, 530c, 540c, 550c, 570c, 590c, 600c, 610c, 620c, 640c, 650c, 680c, 690c, 800c, 810c, 820c, 830c, 840c, 850c, 870c, 880c, 890c.
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**WYOMING**

CHEYENNE: Wyoming Highway Department Testing Laboratory, 1102 West Twenty-second Street.	500cp, 510p, 530p, 590cp, 600p, 800cp, 840cp.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## COLLEGE LABORATORIES

In the accompanying list the laboratories have been arranged alphabetically both by names of colleges and in accordance with the geographical locations of the colleges. Explanations of the symbolic references to the types of commodities that can be investigated and the nature of the investigations made are given on pages 1 and 2.

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## GEOGRAPHICAL LISTING OF COLLEGES

## ALABAMA

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>AUBURN:</b> Alabama Polytechnic Institute..... Agricultural laboratory, M. J. Funchess. Bacteriological laboratory, R. S. Sugg. Chemistry laboratory, C. L. Hare. Engineering laboratory, J. E. Hannum. Physics laboratory, Fred Allison. State department of toxicology, C. J. Rehling.	000bt, 010it, 020bit, 030t, 040t, 100ct, 110ct, 120t, 130t, 140t, 150t, 160t, 170t, 220ct, 230apt, 280t, 290t, 300pa, 310pa, 320a, 330a, 340pa, 360pa, 370pa, 390pa, 490pa, 510p, 570pa, 590pa, 600pc, 630c, 640c, 650c, 680c, 690c, 700s, 710s, 730s, 760s, 780s, 810cpt, 820ct, 830ct, 850c, 860a, 870c, 880bc, 890eta.
<b>BIRMINGHAM:</b> Howard College..... Chemistry laboratory, John Xan.	660c, 820c, 830c, 850c.
<b>UNIVERSITY:</b> University of Alabama..... Aeronautical laboratory, C. J. Bryan. Ceramics laboratory, T. N. McVay. Chemical laboratory, S. J. Lloyd. Chemical engineering laboratory, K. W. Coons. Civil engineering laboratory, J. M. Faircloth. Electrical engineering laboratory, W. J. Miller. Electronics laboratory, Ferdinand Mitchell. Human nutrition laboratory, Neige Todhunter. Mechanical engineering laboratory, D. H. Shenk. Metallurgical laboratory, Robert Oliver. Mining engineering laboratory, J. W. Stewart. Physical laboratory, J. R. Cudworth. Physics laboratory, B. A. Wooten. X-ray laboratory, Eric Rodgers.	010abchps, 020abchps, 030abchps, 040abchps, 120abchps, 130abchps, 140abchps, 150abchps, 160abchps, 170achps, 200cih, 210cih, 230cps, 300achps, 400ahpx, 410ahpx, 420ahpsx, 430- ahpx, 470achpix, 490acphx, 500aehpls, 510achip, 520achpsx, 530ahip, 540hmps, 550hmps, 570ce, 590ce, 600aehpls, 610aehmps, 620aehmps, 630- aehlmp, 640acehmp, 650aehmp, 670s, 680- ceahmp, 690aehpls, 700eis, 710hiplse, 740ips, 750ipls, 760hips, 780hips, 800ach, 840abchit, 860c, 880bcip, 910ips.

## ALASKA

<b>COLLEGE:</b> University of Alaska..... Agricultural laboratory, J. T. Bell. Biological laboratory, Druska C. Carr. Chemistry laboratory, Charles L. Koelsche. Geology laboratory, H. G. Wilcox. Geophysical laboratory, Ernest Wolff. Home economics laboratory, Lola Cremeans Tilly. Materials testing laboratory, Wm. E. Duckering. Metallurgical laboratory, H. G. Wilcox. Mining laboratory, H. G. Wilcox. Physics laboratory, E. F. George.	000b, 010b, 020abc, 100ac, 100c, 390acp, 500ah, 510ap, 530a, 540a, 550a, 560a, 590a, 600ap, 620acmp, 630acmp, 640acmp, 650acmp, 660- acmp, 680acmp, 690acmp, 710ae, 750as, 820c, 830ac, 850ac, 890ac.
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## ARIZONA

<b>TUCSON:</b> University of Arizona..... Agricultural chemistry laboratory, W. T. McGeorge. Chemicals and allied products laboratory, W. T. McGeorge. Chemistry laboratory, Ernest Anderson. Civil engineering laboratory, E. S. Borgquist. Electrical engineering laboratory, James C. Clark. Machinery and vehicles laboratory, M. L. Thornburg. Mechanical engineering laboratory, M. L. Thornburg. Mineralogical laboratory, T. G. Chapman. Mining engineering, metallurgical, and metallographic laboratories, T. G. Chapman. Nonmetallic minerals (Bureau of Mines) laboratory, T. G. Chapman. Ores, metals, etc., laboratory, T. G. Chapman. Petrographic laboratory, M. A. Short. Physics laboratory, E. H. Warner. Wood and paper laboratory, Ernest Anderson.	020c, 040c, 090c, 100c, 110c, 120c, 130c, 140c, 160c, 170c, 470e, 490e, 500ch, 510pem, 520e, 530pc, 540m, 550cpem, 570m, 590cmh, 600pm, 610m, 620m, 630m, 640m, 650m, 660m, 680m, 690m, 700p, 850c, 880c.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## ARKANSAS

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>FAYETTEVILLE:</b>	
University of Arkansas..... Agricultural chemistry laboratory, Barnett Sure. Agricultural engineering laboratory, Kyle Engler. Agricultural experiment station, Lippert S. Ellis. Animal breeding laboratory, Warren Gifford. Animal industry laboratory, Warren Gifford. Animal nutrition laboratory, Warren Gifford. Bacteriology laboratory, Delbert Swartz. Botany laboratory, D. M. Moore. Chemistry laboratory, Harrison Hale. Cotton laboratory, R. P. Bartholomew. Dairy manufacturing laboratory, Warren Gifford. Dairy physiology laboratory, Warren Gifford. Electrical engineering laboratory, W. B. Stelzner. Engineering experiment station, G. P. Stocker. Entomology laboratory, W. J. Baerg. Field crops laboratory, R. P. Bartholomew. Geology laboratory, A. W. Giles. Highway materials laboratory, W. R. Spencer. Horticulture laboratory, J. R. Cooper. Hydraulics and materials laboratories, W. R. Spencer. Mechanical laboratory, Russell G. Paddock. Physics laboratory, L. B. Ham. Plant pathology laboratory, V. H. Young. Poultry laboratory, Warren Gifford. Seeds laboratory, John Casey. Soils testing laboratory, R. P. Bartholomew. Veterinary science laboratory, Delbert Swartz. Zoology laboratory, S. C. Dellinger.	000abc, 010abc, 020abc, 100abc, 110abc, 120abc, 130abc, 140abc, 170c, 240ab, 250abi, 290abi, 300ab, 360ab, 400p, 410p, 500chp, 510cp, 520c, 530c, 540c, 550e, 570c, 590c, 600cp, 610cp, 620cp, 630ep, 640cp, 650c, 680cp, 690cp, 700hp, 710- ehp, 720hp, 730hp, 740p, 780p, 790p, 800cp, 820cp, 830ep, 850c, 880ep, 890c.

## CALIFORNIA

<b>BERKELEY:</b>	University of California..... Agricultural chemistry laboratory, H. A. Young (Davis). Agricultural engineering laboratory, H. B. Walker (Davis). Agronomy laboratory, B. A. Madson (Davis). Animal husbandry laboratory, G. H. Hart (Davis). Botany laboratory, W. A. Robbins (Davis). Citrus experiment station laboratories, L. D. Batchelor (Riverside). Dairy industry laboratory, E. L. Jack (Davis). Dynamics laboratory, C. F. Garland. Electrical engineering laboratory, T. C. McFarland. Engineering materials laboratory, R. E. Davis. Entomology and parasitology laboratory, E. O. Essig. Fluid mechanics laboratory, R. G. Folsom. Food technology laboratory, W. V. Cruess. Forestry laboratory, Walter Mulford. Genetics laboratory, E. B. Babcock. Irrigation investigations laboratory, F. J. Veihmeyer (Davis). Mechanical engineering laboratory, C. J. Vogt. Mining engineering laboratory, L. C. Uren. Petroleum engineering laboratory, L. C. Uren. Physical metallurgy laboratory, R. R. Hultgren. Plant nutrition laboratory, D. R. Hoagland. Plant pathology laboratory, Max Gardner. Pomology laboratory, W. P. Tufts (Davis). Poultry husbandry laboratory, L. W. Taylor. Process metallurgy laboratory, L. H. Duschak. Sanitary engineering laboratory, W. F. Langelier. Soil technology laboratory, Hans Jenny. Subtropical horticulture laboratory, R. W. Hodgson (Los Angeles). Truck crops laboratory, J. E. Knott (Davis). Veterinary science laboratory, C. M. Haring.	020cb, 060p, 100cb, 200p, 320p, 330p, 360p, 400p, 410p, 500cplah, 510p, 530cph, 560i, 570ac, 600achmp, 620acmp, 630cmp, 650cp, 680cp, 690cp, 700hps, 710eps, 720hps, 730s, 750eilps, 760eilps, 780ps, 790ps.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## CALIFORNIA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
BERKELEY—Continued.	
University of California—Continued.	
Viticulture laboratory, A. J. Winkler (Davis).	
Zoology laboratory, T. I. Storer (Davis). (Davis, Calif., is the location of the university farm and branch of the college of agriculture.)	
LOS ANGELES:	
Occidental College.....	510c, 520c, 600cpe, 620pe, 630pe, 640cpe, 650pe, 710pe, 810c, 820c, 830c, 880c, 910epe.
Biological laboratory, Raymond Selle, Hazel Field.	
Botanical laboratory, Frank J. Smiley.	
Chemical laboratory, L. Reed Brantley, James F. Mead, Ormal S. MacDonald.	
Geological laboratory, Frank J. Smiley.	
Physical laboratory, Henry Kirkpatrick, Vernon Bollman.	
University of Southern California.....	000ab, 010abct, 020abcpt, 030ab, 040acp, 050abi, 060aci, 070abi, 100abct, 110b, 120ab, 130abc, 140ae, 150b, 160abep, 170b, 200e, 240ab, 250ab, 260b, 280ab, 290ab, 300abcip, 310abcip, 320-abcip, 330abcip, 340a, 360acip, 370acip, 390acip, 400aip, 410abip, 420b, 430b, 480b, 490b, 500-acehp, 510hp, 520aip, 540ap, 550ap, 560ap, 570a, 590a, 600ehacmp, 610imp, 620eimp, 630eimp, 640eimp, 650eimp, 680eimp, 690eimp, 700esih, 710ehps, 730es, 750ip, 800acb, 810et, 880b, 910ehps.
Bacteriology and parasitology laboratories, John F. Kessel.	
Bacteriology laboratory, James W. Bartholomew.	
Biochemical laboratory, Harry J. Deuel.	
Botany laboratory, George Rufus Johnstone.	
Chemical engineering laboratory, Herbert Waterman.	
Chemistry laboratory, Anton B. Burg.	
Civil engineering laboratory, D. M. Wilson.	
Electrical engineering laboratory, P. S. Biegler.	
Experimental medicine laboratory, F. W. Moore.	
Geology laboratory, Thomas Clements.	
Mechanical engineering laboratory, Thomas T. Eyre.	
Merchandising laboratory, Lucille Van de Steeg.	
Milk commission laboratory, Charles W. Bonynge.	
Nutrition laboratory, Harry J. Deuel.	
Petroleum engineering laboratory, Dean Sheldon.	
Pharmacology laboratory, Clinton H. Thienes.	
Pharmacy laboratory, Alvah G. Hall.	
Physics laboratory, C. M. Van Atta.	
Zoology laboratory, B. M. Harrison.	
OAKLAND:	
Mills College.....	010ac, 020abc, 030abc, 040abc, 100abc, 110abc, 130abc, 140abc, 150abc, 160abc, 170abc.
Bacteriological laboratory, Herbert Graham.	
Biological laboratory, William Ingram.	
Botanical laboratory, H. E. McMinn.	
Chemical laboratory, Leona E. Young, Richard Wistar.	
Geography and geology laboratory, William Ingram.	
Household science laboratory, Mrs. Carrie C. Dozier, Muriel R. Stoner.	
Institutional administration laboratory, Mildred Reynolds.	
Physics laboratory, Grayson Schmidt.	
Psychology laboratory, Mrs. Mary C. Burch, Mrs. Ethel Sabin-Smith, Bing-Chung Ling.	
Zoology laboratory, Herbert Graham, William Ingram, Eleanor S. Boone.	
PASADENA:	
California Institute of Technology.....	410p, 500cp, 520cp, 530p, 550cp, 600cprn, 610cprn, 620cprn, 630cprn, 640cprn, 650cprn, 680cprn, 690cprn, 700s, 710s, 750s.
Electrical engineering laboratory, R. W. Sorensen.	
Gates Chemical laboratory, Linus Pauling.	
Guggenheim aeronautics laboratory, C. B. Millikan.	
Hydraulics laboratory, R. L. Daugherty.	
Materials testing laboratory, F. J. Converse.	
Mechanical engineering laboratory, R. L. Daugherty.	
Norman Bridge laboratory of physics, E. C. Watson.	
Southern California coop. wind tunnel, C. B. Millikan.	
STANFORD UNIVERSITY:	
Stanford University.....	410ips, 420ips, 500che, 510ips, 520ips, 600cmps, 610cmps, 620cmps, 630cmps, 640cmps, 650cmps, 680cmps, 690cmps, 700p, 710ep, 720p, 740p, 750p, 780p, 790p, 830c, 870c, 880c, 890c.
Aerodynamics laboratory, E. G. Reid.	
Chemical laboratory, P. A. Leighton.	
Civil engineering laboratory, Leon B. Reynolds.	
Electrical engineering laboratory, Hugh H. Skilling.	
Mechanical engineering laboratory, Lydik S. Jacobsen.	
Metallurgical laboratory, F. G. Tickell.	
Stanford Research Institute, W. F. Talbot.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## CALIFORNIA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>STOCKTON:</b> College of the Pacific..... Chemical laboratory, J. H. Jonte, Fred J. Clark, Ralph Goebel. Food processing laboratory, Barthol Pierce, E. E. Stanford.	120bc, 130bc, 500c, 590c, 600c, 640c, 650c, 680c, 690c, 800c.

## COLORADO

<b>BOULDER:</b> University of Colorado..... Biology laboratory, G. Alexander. Chemistry laboratory, P. Dean, N. F. Witt Electrical engineering laboratory, F. A. Easton. Electrical standardizing laboratory, C. M. McCormick. Engineering experiment station, C. W. Borgmann. Geology laboratory, W. O. Thompson. Materials testing laboratory, W. H. Thoman. Mineralogy and petrography laboratory, E. E. Wahlstrom. Physics laboratory, W. B. Pietenpol.	000abc, 010abc, 020abc, 030abc, 100abc, 110abc, 120abc, 130abc, 140abc, 150abc, 160abc, 170- abc, 200ep, 220abc, 240abc, 290abc, 300ac, 310- ac, 320ac, 330ac, 340ac, 360ac, 370ac, 390ac, 400ap, 470ac, 500cls, 510acp, 520aephc, 530acp, 540ac, 550acep, 570acep, 600acpie, 610ep, 620- acep, 630acep, 640acep, 650acep, 660acep, 670s, 680acep, 690acep, 710eis, 720s, 740s, 750s, 760s, 800cps, 810ac, 820ac, 830ac, 840acs, 850ac, 860ac, 870ac, 880abc, 890ac, 910s, 950aps.
<b>COLORADO SPRINGS:</b> Colorado College..... Biology (animal) laboratory, Ralph J. Gilmore. Biology (plants) laboratory, C. W. T. Penland. Chemistry laboratory, O. A. Barnes. Engineering science laboratory, Frank M. Okey. Geology laboratory, Don B. Gould. Physics laboratory, Paul E. Boucher. Psychology laboratory, William A. Blakely.	
<b>FORT COLLINS:</b> Colorado A & M College..... Animal nutrition laboratory, L. E. Washburn. Bacteriology laboratory, Floyd Cross. Chemistry and food technology laboratory, W. E. Pyke. Crops laboratory, D. W. Robertson. Dairy laboratory, E. B. Williams. Entomology laboratory, G. M. List. Foods and nutrition laboratory, Elizabeth Dyar. Horticulture laboratory, A. M. Binkley. Irrigation engineering laboratory, N. A. Christensen. Mechanical engineering laboratory, J. T. Strate. Parasitology laboratory, W. H. Krull. Pathology laboratory, Floyd Cross. Plant pathology laboratory, L. W. Durrell. Poultry laboratory, H. S. Wilgus. Range management laboratory, E. W. Nelson. Seed laboratory, B. J. Thornton. Soils laboratory, Robert Gardner. Wool laboratory, Eugene Bertone.	000bx, 020bc, 100abc, 110abct, 120abc, 230c, 240a, 250b, 360as, 400p, 510p, 730p, 780p, 810bc, 850bc.
<b>GOLDEN:</b> Colorado School of Mines..... Chemical laboratory, Leon S. Ward, Robert A. Baxter. Experimental plant laboratory, A. H. Weinig. Geological laboratory, F. M. Van Tuyl. Geophysics laboratory, C. A. Heiland. Metallurgical laboratory, Clark B. Carpenter. Mining laboratory, M. I. Signer. Petroleum laboratory, Clark F. Barb, James O. Ball. Spectrographic laboratory, Robert T. Phelps.	500cp, 510acp, 530acp, 540acp, 550acp, 560acp, 570acp, 590acp, 600cmp, 610cmp, 620cmp, 630- cmp, 640cmp, 650cmp, 660cmp, 680cmp, 690- cmp, 750s.

## CONNECTICUT

<b>HARTFORD:</b> Trinity College..... Bacteriological laboratory, H. C. Swan. Biological laboratory, T. H. Bissonnette. Chemistry laboratory, V. K. Krieble. Engineering laboratory, H. J. Lockwood. Physics laboratory, F. W. Constant.	000b, 020c, 040c, 100c, 110c, 140c, 150c, 160c, 500c, 510c, 520cp, 530c, 540c, 550p, 570c, 590c, 600cp, 610cp, 620cp, 630cp, 640cp, 650cp, 680cp, 690p, 710p, 810b, 820c, 830c, 850c, 870c, 880cb, 890c, 910p.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## CONNECTICUT—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>NEW HAVEN:</b> Yale University..... Dunham electrical laboratory, A. G. Conrad. Engineering mechanics laboratory, Hardy Cross. Hammond metallurgical laboratory, C. H. Mathewson. Mason mechanical laboratory, W. J. Wohlenberg. Sloane physics laboratory, W. W. Watson. Sterling chemistry laboratory, A. J. Hill, B. F. Dodge.	220c, 520pa, 590pax, 600achmp, 610achmp, 620achmp, 630achmp, 640achmp, 650achmp, 680achmp, 690ahmp, 700hps, 710eps, 720ps, 740ps, 750ps, 760ps, 780ps, 790psh, 800c, 810c, 890c, 910ape.

## DELAWARE

<b>NEWARK:</b> University of Delaware..... Agricultural chemistry laboratory, Geo. L. Baker. Agronomy laboratory, C. E. Phillips. Animal and poultry industry laboratory, A. E. Tomhave. Bacteriology laboratory, C. C. Palmer. Chemical engineering laboratory, A. P. Colburn. Chemistry laboratory, A. S. Eastman. Electrical laboratory, M. G. Young. Horticultural laboratory, E. P. Brasher. Hydraulic laboratory, T. D. Mylrea. Materials testing engineering laboratory, H. K. Preston. Mechanical laboratory, J. I. Clower. Physics laboratory, J. F. Daugherty. Plant pathology laboratory, T. F. Manns.	020bc, 100acp, 110acp, 120acp, 130acp, 240acp, 250ap, 290acp, 400p, 410p, 420p, 500cpls, 510p, 600acp, 620acp, 630acp, 640acp, 650acp, 680acp, 700hs, 710ehs, 720h, 760hs, 800cpls, 840cp, 850c, 860cp, 910chs.
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## DISTRICT OF COLUMBIA

<b>WASHINGTON:</b> Catholic University of America..... Aeronautical laboratory, L. H. Crook. Biological laboratory, E. G. Reinhard. Chemical laboratory, F. O. Rice. Civil engineering laboratory, F. A. Biberstein. Electrical engineering laboratory, T. J. MacKavanagh. Mechanical engineering laboratory, M. E. Weschler. George Washington University..... Bacteriology laboratory, Leland W. Parr. Biochemistry laboratory, Joseph H. Roe. Chemistry laboratory, B. D. Van Evera. Civil engineering laboratory, Electrical engineering laboratory, Norman B. Ames. Mechanical engineering laboratory, A. F. Johnson. Pathology laboratory, Roger M. Choisser. Pharmacology laboratory, Paul K. Smith. Pharmacy laboratory, Charles W. Bliven. Physics laboratory, Thomas B. Brown. Georgetown University Chemo-Medical Research Institute..... Research chemistry laboratory, M. X. Sullivan.	500ch, 510ip, 600cp, 610ip, 640ip, 700s, 710is, 800c, 910s.  040bc, 140c, 220ct, 400p, 410p, 500ph, 510p, 530ep, 600p, 700sp, 710csp, 780e, 790e, 810ct, 820c, 830c, 880bc.  010c, 020c, 030c, 040c, 050c, 110c, 120c, 130c, 140c, 240c, 360c, 810c.
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## FLORIDA

<b>DELAND:</b> John B. Stetson University..... Biology laboratory, Dorothy L. Fuller. Chemistry laboratory, John F. Conn. Civil engineering laboratory, C. M. Lowry. Electrical laboratory, R. I. Allen. Mechanical laboratory, C. M. Lowry. Physical laboratory, R. I. Allen.	000ab, 010abc, 020abc, 030b, 040abc, 090abc, 100abc, 110abc, 120abc, 130abc, 140abc, 150abc, 160abc, 170ac, 240ab, 250ab, 280a, 290a, 300a, 320a, 330a, 340ab, 500c, 600c, 610c, 620c, 630c, 640c, 650c, 680c, 690c, 710pe, 800c, 810c, 830c, 850c, 870c, 890c.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## FLORIDA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>GAINESVILLE:</b>	
University of Florida.....	000t, 010pi, 020abcp, 040acp, 050pi, 060cp, 090-abct, 100c, 110c, 120c, 130c, 140ac, 150ac, 160ac, 210acpt, 220acpt, 230acp, 260ct, 320cip, 330-acip, 340acip, 400abchps, 470abcehp, 490acp, 500acp, 510acsp, 520cp, 530achp, 540cp, 550cp, 570c, 590achp, 600acimp, 620acimp, 630acimp, 640acimp, 650acimp, 660c, 680acimp, 690cp, 700ps, 710eips, 730ips, 790eips, 800cp, 810acpt, 820cip, 830cip, 840cip, 850cip, 870cip, 880abcist, 890cip, 910ips, 990acips.
Agricultural experiment station.	
Main Station, Harold Mowry.	
Agricultural economics laboratory, C. V. Noble.	
Agronomy laboratory, W. E. Stokes.	
Animal industry laboratory, A. L. Shealy.	
Entomology laboratory, A. N. Tissot.	
Home economics laboratory, O. D. Abbott.	
Horticulture laboratory, G. H. Blackmon.	
Plant pathology laboratory, W. B. Tisdale.	
Soils laboratory, F. B. Smith.	
Branch stations	
North Florida, Quincy, J. D. Warner	
Citrus, Alfred Lake, A. F. Camp.	
Everglades, Belle Glade, R. V. Allison.	
Subtropical, Homestead, G. D. Ruehle.	
Range Cattle, Ona, W. G. Kirk.	
Central Florida, Sanford, R. W. Ruprecht.	
Chemistry laboratory, T. R. Leigh.	
Engineering and industrial experiment station, Joseph Weil, R. A.	
Morgen.	
Chemical engineering laboratory, W. H. Beisler.	
Civil engineering laboratory, C. D. Williams.	
Electrical engineering laboratory, F. H. Pumphrey.	
Mechanical engineering laboratory, N. C. Ebaugh.	
Sanitary engineering laboratory, C. D. Williams.	
School of Pharmacy, P. A. Foote.	
Pharmaceutical chemistry laboratory, P. A. Foote.	
Pharmacognosy laboratory, C. H. Johnson	
Pharmacology laboratory, P. A. Mattis.	
Pharmacy laboratory, W. J. Husa.	

## GEORGIA

<b>ATHENS:</b>	College of Agriculture.....	000abc, 020abc, 100abc, 110abc, 120abc, 130abc, 240ab, 250ab, 260ab, 300a, 390a, 710aep, 730ap, 810ac, 850ac.
	Agricultural chemistry laboratories, C. N. Wilder.	
	Agricultural engineering laboratories, R. H. Drifmier.	
	Agronomy laboratories, W. O. Collins.	
	Animal husbandry laboratories, M. P. Jarnagin.	
	Chemistry laboratories, Alfred W. Scott.	
	Forestry laboratories, D. J. Weddell.	
	Home economics laboratories, Mary E. Cresswell.	
	Horticultural laboratories, T. H. McHatton	
	Poultry husbandry laboratories, J. C. Bell.	
	Veterinary laboratories, Clifford Westerfield.	
<b>ATLANTA:</b>	Georgia School of Technology.....	020ab, 040aceps, 090b, 120abc, 130abc, 140aceps, 170ab, 210aceps, 300acips, 310acips, 320acips, 330acips, 340acips, 360acips, 370acips, 390acips, 410aips, 420i, 500chip, 510achips, 520ch, 530-achips, 540acips, 550acips, 560acips, 570acips, 590acips, 600acipshmp, 610himp, 620himp, 630-himp, 640himp, 650himp, 660himp, 680himp, 690himp, 700hilps, 710hilps, 720ahilpse, 730-hilps, 740hilps, 750hilps, 760hilps, 770ahilps, 780hilps, 790hilps, 800aceps, 820aceps, 830aceps, 840aceps, 850aceps, 860aceps, 870aceps, 880-aceps, 890aceps, 910ips.
	Aeronautical engineering laboratory, D. W. Dutton.	
	Bacteriology laboratory, H. A. Wyckoff.	
	Ceramic engineering laboratory, Lane Mitchell.	
	Chemical engineering laboratory, J. W. Mason.	
	Chemistry laboratory, J. L. Daniel.	
	Electrical engineering laboratory, D. P. Savant.	
	Electronic microscopy laboratory, G. A. Rosselot.	
	Electronics laboratory:	
	Electronics EE, D. P. Savant.	
	Electronics Physics, J. H. Howey.	
	Food preservation laboratory, F. Bellinger.	
	Gage laboratory, Homer Weber.	
	Highway and masonry materials laboratory, J. H. Lucas.	
	Hydraulic laboratory, C. E. Kindsvater.	
	Low temperature laboratory, W. T. Ziegler.	
	Mechanical engineering laboratory, Homer Weber.	
	Physics laboratory, J. H. Howey.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## GEORGIA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>ATLANTA</b> —Continued. Georgia School of Technology—Continued. Sanitary engineering laboratory, G. W. Reid. Spectrographic laboratory, W. M. Spicer. Textile engineering laboratory, H. A. Dickert. Time and motion study laboratory, F. F. Groseclose. Wind tunnel laboratory, D. W. Dutton.	

## HAWAII

<b>HONOLULU:</b> University of Hawaii..... Chemical laboratory, Leonora N. Bilger..... Engineering laboratory, W. J. Holmes..... Fodders and feeds laboratory, G. D. Sherman..... Physical laboratory, W. H. Eller.	020bc, 100c, 110c, 120c, 130c, 160c, 420p, 500c, 510cp, 600cp, 610cp, 620cp, 630cp, 640cp, 650cp, 690cp, 710e, 800c, 820c, 830c, 850c, 870c, 880c, 890c, 910eps.
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## IDAHO

<b>MOSCOW:</b> University of Idaho..... Agricultural chemistry laboratory, A. C. Wiese..... Agronomy laboratory, K. H. W. Klages..... Animal husbandry laboratory, C. W. Hickman..... Bacteriology laboratory, V. A. Cherrington..... Biology laboratory, H. B. Stough..... Chemistry and chemical engineering laboratory, L. C. Cady..... Dairy husbandry laboratory, D. L. Fourt..... Electrical engineering laboratory, J. Hugo Johnson..... Entomology laboratory, H. C. Manis..... Forest pathology laboratory, A. W. Slipp..... Geology and mineralogy laboratory, Paul C. Henshaw..... Horticultural laboratory, Lief Verner..... Materials testing laboratory, A. S. Janssen..... Mechanical engineering laboratory, Henry F. Gauss..... Metallurgical laboratory, A. W. Fahrenwald..... Physics laboratory, G. L. Luke..... Plant pathology laboratory, C. W. Hungerford..... Wood utilization laboratory, W. V. White..... Zoology laboratory, H. B. Stough.	000p, 010bc, 020bcs, 040cs, 090s, 100cs, 110bcs, 120aps, 130acs, 140cs, 160c, 170c, 200c, 210c, 230b, 240s, 250ais, 280c, 290s, 400bcip, 410ip, 420cip, 470cps, 490c, 500hpsc, 510apc, 520apc, 530emap, 540ema, 550ach, 570ach, 590ach, 600aip, 610aip, 620ahimp, 640cmp, 650cmp, 660m, 680cp, 690mc, 700hilps, 710pe, 730ailps, 740ilps, 750i, 760ilps, 770s, 780hilps, 790hilps, 800p, 810s, 830c, 840cp, 850es, 890c, 910s.
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## ILLINOIS

<b>BLOOMINGTON:</b> Illinois Wesleyan University..... Biology laboratory, W. W. Wantland..... Chemistry laboratory, C. R. Brothers..... Physics laboratory, T. F. Hargitt.	000b, 010cb, 020c, 030c, 040c, 050c, 090c, 100c, 110c, 120c, 130c, 140c, 160c, 170c, 300c, 310c, 320c, 330c, 340c, 360c, 370c, 390c, 500c, 510c, 530c, 550c, 570c, 590c, 600c, 610c, 620c, 630cep, 650c, 680c, 690c, 710pe, 800c, 810cb, 820c, 830c, 840c, 850c, 860c, 870c, 880c, 890c.
<b>CHICAGO:</b> Armour Research Foundation of Illinois Institute of Technology..... Acoustics laboratory, H. A. Leedy..... Analytical chemistry laboratory, W. McCrone..... Ceramics and minerals laboratory, E. P. Flint..... Chemical engineering laboratory, M. E. Nelson..... Electrical engineering laboratory, K. W. Miller..... Electricity and magnetism laboratory, R. B. Vaile..... Fluid mechanics laboratory, V. L. Streeter..... Heat transfer laboratory, Dr. Budenholzer..... High pressure laboratory, T. C. Poulter..... Light and optics laboratory, H. T. Betz.	000-099 (all development and research); 100-199 (all research and development); 200-299 (all research and development); 300-399 (all re- search and development); 500-599 (all research and development); 600-699 (all research and development); 710, 750, 770 (all research and development); 800, 820, 830, 840, 860, 870, 900- 999 (all research and development).

<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COLLEGES—Continued****ILLINOIS—Continued**

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>CHICAGO—Continued.</b> Armour Research Foundation of Illinois Institute of Technology—Continued.	
Magnetic recording laboratory, R. B. Vaile. Mechanical engineering laboratory, N. C. Penfold. Metallurgy laboratory, W. E. Mahin. Microscopy laboratory, W. C. McCrone. Network calculator laboratory, E. R. Whitehead. Precision electrical measurements laboratory, E. H. Schulz. Precision gage laboratory, N. C. Penfold. Spectroscopy laboratory, Mark Fred. Solid mechanics laboratory, LeVan Griffis. X-ray diffraction laboratory, S. Siegel.	
Illinois Institute of Technology..... (Consolidation of Armour Institute of Technology and Lewis Institute)	See Armour Research Foundation.
Lewis Institute..... Loyola University School of Medicine.....	See Illinois Institute of Technology. 810ct, 830c.
Anatomical laboratory, T. T. Job. Bacteriology laboratory. Chemical laboratory, W. R. Tweedy. Experimental medical laboratory, J. Sendroy, Jr. Pathological laboratory, J. F. Sheehan. Pharmacology laboratory, R. Mendez. Physiology laboratory, T. E. Boyd.	
Northwestern University..... University of Chicago..... Bacteriology and parasitology laboratory, W. H. Taliaferro. Biochemistry laboratory, Earl A. Evans, Jr. Chemistry laboratory, Warren Johnson. Geochemical laboratory, Tom F. W. Barth. Home economics laboratory, Thelma Porter. Institute of food research laboratory, Gail M. Dack. Institute of metals laboratory, Cyril S. Smith. Institute of nuclear studies laboratory, Samuel K. Allison. Institute of radiobiology and biophysics, Raymond E. Zirkle. Pathology laboratory, Paul Cannon. Pharmacology laboratory, Eugene M. K. Geiling. Physics laboratory, William H. Zachariasen. Physiology laboratory, John O. Hutchens. Toxicity laboratory, John O. Hutchens.	See Evanston. 000b, 010b, 020cb, 030cb, 040cb, 090cbt, 100cbt, 120b, 140cbt, 160cp, 200cbt, 290cbt (alkaloids), 300cp, 360cp, 370cp, 520p, 600c, 610c, 710s, 800cb, 810cb, 880cb, 910s.
EVANSTON: Northwestern University..... Botany laboratory, L. H. Tiffany. Chemistry laboratory, R. K. Summerbell. Dentistry laboratory, C. W. Freeman. Engineering (various) laboratories, Paul E. Klopsteg. Geology laboratory, A. L. Howland. Medicine (various) laboratories, J. R. Miller. Physics laboratory, B. J. Spence. Speech (acoustics) laboratory, Raymond Carbart. Zoology laboratory, J. W. Buchanan.	020b, 040c, 100c, 140c, 150c, 160bc, 250b, 460b, 500acp, 510ac, 520ac, 530c, 540ac, 550a, 560a, 570ac, 590ac, 600acx (ores), 620ac (ores), 630acs (ores), 640acx (ores), 650acx (ores), 660acp (ores), 680acx (ores), 690ac (ores), 710s, 800c, 810bct, 820bct, 830bct, 870bct, 880c, 890bct, 910pl, 920ps, 950c.
MONMOUTH: Monmouth College..... Bacteriology laboratory, Helen Wharton. Mineralogy laboratory, F. M. McClenahan. Parasitology laboratory, W. Malcolm Reid. Physical laboratory, Lyle W. Finley.	020ab, 040ab, 090ab, 170ab, 470p, 510cm, 520h, 530cmh, 600pe, 640pe, 690cm.
NAPERVILLE: North Central College..... Chemistry laboratory, I. A. Koten, E. M. Schap. Geology laboratory, C. L. Bieber. Home economics laboratory, Leona Kretzman. Physics laboratory, A. D. Page. Zoology laboratory, H. J. Eigenbrodt.	500a, 510a, 530a, 540a, 550a, 560a, 570a, 590a, 600c, 620a, 630ac, 640c, 650ac, 680a, 690a, 800c, 820c, 830c, 870c.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## ILLINOIS—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>URBANA:</b> University of Illinois.....	000cb, 010cbp, 020cbx, 110cpb, 510ip, 520achps, 530achps, 600mpasx, 610pm, 620pm, 630-mpasx, 640mpasx, 650mpasx, 660ampsx, 680-ampsx, 690ampx, 700splih, 710plh, 720splhi, 730spli, 740splhi, 750splhi, 760splhi, 770splhi, 780splhi, 790splhi.
Aeronautical engineering laboratory, H. S. Stillwell. Agricultural engineering laboratory, E. W. Lehmann. Agronomy laboratory, W. L. Burlison. Animal husbandry laboratory, W. E. Carroll.	
Applied chemistry testing work laboratory.	
Applied mechanics laboratory, F. B. Seely.	
Bacteriological laboratory, F. W. Tanner.	
Betatron laboratory, D. W. Kerst.	
Ceramic engineering laboratory, A. I. Andrews.	
Chemical engineering laboratory, H. F. Johnstone.	
Chemistry laboratory, Roger Adams.	
Dairy husbandry laboratory, W. W. Yapp.	
Electrical engineering laboratory, W. L. Everitt.	
Engineering experiment station laboratory, M. L. Enger.	
Highway engineering laboratory, W. C. Huntington.	
Home economics laboratory, Miss Lita Bane.	
Horticultural laboratory, M. J. Dorsey.	
Mechanical engineering laboratory, N. A. Parker.	
Metallurgical engineering, H. L. Walker.	
Mining engineering laboratory, H. L. Walker.	
Nuclear radiations, P. G. Kruger.	
Physics laboratory, F. W. Loomis.	
Railway engineering laboratory, H. J. Schrader.	
Sanitary engineering laboratory, H. E. Babbitt.	

## INDIANA

<b>BLOOMINGTON:</b> Indiana University.....	160bc, 170bc, 290bc, 500bc, 510ac, 520c, 530ch, 540c, 550c, 560c, 570c, 590c, 600cm, 620cm, 630cm, 640cm, 650cm, 660cm, 690cm, 800c, 810c, 820c, 830c, 840c, 850c, 860c, 870c, 880c, 890c.
Bacteriological laboratory, L. S. McClung.	
Botany laboratory, R. E. Cleland.	
Chemical laboratory, F. C. Mathers.	
Geology laboratory, Charles Deiss.	
Physics laboratory, A. C. G. Mitchell.	
<b>CRAWFORDSVILLE:</b> Wabash College.....	000a, 020c, 110c, 140ac, 150a, 160c, 170c, 240b, 300ac, 360ac, 390ac, 470ac, 500c, 510c, 570c,
Botanical laboratory, A. R. Bechtel.	600c, 620c, 630c, 640c, 650c, 680c, 690c, 800c,
Chemical laboratory, L. B. Howell.	820c, 830c, 840ac, 850ac, 870ac, 890c.
Physical laboratory, Duane Roller.	
Zoological laboratory, Willis Johnson.	
<b>HANOVER:</b> Hanover College.....	000b, 240a, 300ap, 330ap, 370ap, 520ap, 550ap,
Biology laboratory, J. L. Hyatt.	570cp, 600p, 620p, 630cp, 640cp, 650cp, 680cp,
Chemistry laboratory, Ned Guthrie.	690cp, 710cp, 820cp, 830c, 840ps, 850c, 860sp,
Geology laboratory, G. T. Wickwire.	890c, 910aps.
Physics laboratory, R. E. Martin.	
<b>INDIANAPOLIS:</b> Butler University.....	010b, 020b, 120abp, 130abp, 140ab, 150a, 160ab,
Bacteriological laboratory, Ray C. Friesner.	170b, 200aep, 210e, 220a, 240b, 250b, 260ba,
Botanical laboratory, Ray C. Friesner.	280b, 290b, 310a, 320a, 330a, 340a, 360a, 400a,
Chemical laboratory, Guy H. Shadinger.	410a, 420a, 430a, 470a, 500cep, 510e, 520cep,
Physical laboratory, S. E. Elliott.	530c, 550e, 570cc, 600cep, 620c, 630cep, 640cep,
<b>LAFAYETTE:</b> Purdue University.....	650cep, 680cep, 690cep, 710c, 810bt, 820c, 830c,
Aerial photography laboratory, K. B. Woods.	850c, 880bt, 890c.
Aeronautical engineering laboratories, E. F. Bruhn.	020b, 040c, 090c, 100bch, 120pbci, 130b, 140ct,
Agricultural chemistry laboratory, F. W. Quackenbush.	160cb, 170b, 200cx, 210abet, 220abet, 240cpb,
Agricultural engineering laboratories, H. J. Barre.	250b, 260c, 280c, 290bc, 400p, 410p, 430chi, 500c,
Agricultural experiment station, H. J. Reed.	510p, 520p, 530p, 570c, 590abctx, 600cmix,
Agricultural statistical laboratory, M. M. Justin.	610cmix, 620cmix, 630cmix, 640cmix, 650-
Agronomy laboratory, N. J. Volk.	cmix, 680cmix, 690cmix, 700p, 710ps, 730ips,
	800cp, 810abet, 820c, 830ex, 840pc, 850bci, 870-
	abct, 880cb, 890c, 970p.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## INDIANA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>LAFAYETTE</b> —Continued.	
Purdue University—Continued.	
Audio-visual aids laboratory, Justus Rising.	
Animal husbandry laboratory, C. Harper.	
Botany and plant pathology laboratory, R. M. Caldwell.	
Chemical laboratory, H. B. Hass.	
Chemical engineering laboratory, J. L. Bray.	
Civil engineering laboratories, R. B. Wiley.	
Dairy husbandry laboratory, H. W. Gregory.	
Electrical engineering laboratories, D. D. Ewing.	
Engineering experiment station, A. A. Potter.	
Engineering geology laboratory, F. L. Serviss.	
Entomology laboratory, J. J. Davis.	
Experimental foods laboratory, Mary L. Matthews.	
Farm work simplification laboratory, E. C. Young.	
Forestry laboratory, E. R. Martell.	
General engineering laboratories, H. A. Bolz.	
Highway research laboratory, K. B. Woods.	
Horticulture laboratory, Laurenn Greene.	
Household equipment laboratory, Mary L. Matthews.	
Housing research laboratory, Carl Boester.	
Industrial psychology laboratory, F. B. Knight.	
Industrial vision laboratory, F. B. Knight.	
Mechanical engineering laboratories, H. L. Solberg.	
Metallurgical engineering laboratory, J. L. Bray.	
Nutrition laboratory, Mary L. Matthews.	
Ordnance laboratory, G. A. Hawkins.	
Pharmacology laboratory, G. L. Jenkins.	
Pharmacy laboratory, G. L. Jenkins.	
Physics laboratory, K. Lark-Horovitz.	
Poultry husbandry laboratory, J. H. Martin.	
Public opinion laboratory, H. H. Remmers.	
Speech clinic laboratory, A. H. Monroe.	
Textiles laboratory, Mary L. Matthews.	
Veterinary laboratory, C. R. Donham.	
<b>NORTH MANCHESTER</b> :	
Manchester College.....	630cm, 640cm, 650cm, 680cm, 820c, 850c, 870cap,
Biological laboratory, Edward Kintner.	880bc.
Chemical laboratory, Carl W. Holl.	
Physics laboratory, C. S. Morris.	
<b>NOTRE DAME</b> :	
University of Notre Dame.....	000ab, 010ab, 020b, 030ab, 090ab, 100ab, 110a, 120ab, 130ab, 140a, 200ceph, 240ab, 250ab, 400p, 410p, 500c, 600mx, 620mx, 630mx, 640mx, 650-
Bacteriology laboratories, J. A. Reyniers.	mc, 660m, 680mx, 700ps, 760ips, 790ips, 800c,
Biology laboratories, R. Sheehan.	810c, 820c, 830c, 860c, 880bc, 890c, 910p, 950p.
Chemical engineering laboratory, R. E. Rich.	
Chemistry laboratories, C. C. Price.	
Electrical engineering laboratories, J. A. Northcott.	
Engineering mechanics laboratories, C. O. Harris.	
Heat power laboratories, C. C. Wilcox.	
Metallurgy laboratories, E. G. Mahin.	
Nuclear research laboratories, B. Waldman.	
Physical electronics laboratories, E. A. Coomes.	
Polymer physics laboratories, E. Guth.	
Testing materials laboratories, W. L. Shilts.	
<b>TERRE HAUTE</b> :	
Rose Polytechnic Institute.....	040cl, 100c, 110c, 140cl, 400p, 410pi, 500clph, 510clp, 520cepa, 530ceph, 570c, 590c, 600cipm, 610cp, 620cp, 630cp, 640cp, 650cp, 660c, 680cp, 690cp, 700ps, 710ehis, 740s, 790s, 820c, 830c, 840c, 850c, 860c, 880c, 890c.
Shops.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## IOWA

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
AMES:	
Iowa State College . . . . .	000a, 010ai, 020abcijs, 050ai, 100aisc, 110ais, 120ais, 130ais, 150bc, 160bc, 170bc, 220c, 240ai, 250ai, 290bc, 300cas, 340cips, 360acs, 370acs, 390acs, 400ap, 470c, 500achm, 510acips, 520ap, 530ahips, 600mps, 710s, 730ailps, 740ailps, 800c, 810abct, 820c, 850cips, 880cips.
Agricultural engineering laboratory, Hobart Beresford.	
Agricultural experiment station, R. E. Buchanan.	
Animal husbandry laboratory, P. S. Shearer.	
Atomic research institute, F. H. Spedding.	
Bacteriology laboratory, R. E. Buchanan.	
Botanical laboratory, J. C. Gilman.	
Ceramics laboratory, C. M. Dodd.	
Chemical engineering laboratory, O. R. Sweeney.	
Chemistry laboratory, R. M. Hixon.	
Civil engineering laboratory, L. O. Stewart.	
Corn research laboratory, R. M. Hixon.	
Dairy industry laboratory, C. A. Iverson.	
Electrical engineering laboratory, M. S. Coover.	
Engineering experiment station, L. O. Stewart.	
Farm crops laboratory, H. D. Hughes.	
Foods and nutrition laboratory, P. Mabel Nelson.	
Forestry laboratory, G. B. MacDonald.	
Genetics laboratory, E. W. Lindstrom.	
Geology laboratory, C. S. Gwynne.	
Horticulture laboratory, B. S. Pickett.	
Household equipment laboratory, Louise J. Peet.	
Industrial science research institute, H. V. Gaskill.	
Mcats laboratory, M. D. Helser.	
Mechanical engineering laboratory, M. P. Cleghorn.	
Mining engineering laboratory, O. R. Sweeney.	
Physics laboratory, J. W. Woodrow.	
Seeds laboratory, E. P. Sylvester.	
Soils laboratory, W. H. Pierre.	
Statistical laboratory, G. W. Snedecor.	
Textiles and clothing laboratory, Rosalie V. Rathbone.	
Theoretical and applied mechanics laboratory, H. J. Gilkey.	
Veterinary investigation laboratory, H. D. Bergman.	
Zoology and entomology laboratory, C. J. Drake.	
Tropical research center (Antigua, Guatemala), I. E. Melhus.	
GRINNELL:	
Grinnell College . . . . .	
Botany laboratory, Louisa Sargent.	
Chemical laboratory, L. P. Sherman.	
Physics laboratory, G. O. Gale.	
Zoology laboratory, Guillermo Mendoza.	
IOWA CITY:	
State University of Iowa . . . . .	
Analytical chemistry laboratory, Lothrop Smith.	
Biological laboratory, Henry A. Mattill.	
Chemical engineering laboratory, C. S. Grove.	
Communication laboratory, L. A. Ware.	
Electrical engineering laboratory, E. B. Kurtz.	
Engineering materials laboratory, C. J. Posey.	
Experimental engineering laboratory, F. M. Dawson.	
Fuel laboratory, H. L. Olin, H. O. Croft.	
Heat engine laboratory, J. M. Trummel.	
High voltage laboratory, E. B. Kurtz.	
Hydraulics laboratory, Hunter Rouse.	
Illumination laboratory, E. B. Kurtz.	
Manufacturers laboratory, R. M. Barnes.	
Metallurgical laboratory, G. E. Evans.	
Organic chemistry laboratory, Stanley Wawzonck.	
Pharmaceutical laboratory, R. A. Kuever.	
Physics laboratory, L. A. Turner.	
Radio laboratory, Carl Menzer.	
Steam and gas engineering laboratory, H. O. Croft.	
Water and sewage laboratory, Marcus P. Powell.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COLLEGES—Continued****KANSAS**

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
BALDWIN CITY:	
Baker University.....	010ab, 020abc, 040abc, 140cp, 170cpb, 600c, 640c, 650c, 680c, 710p, 820c, 850cp, 880cb, 970cp.
Biology and bacteriology laboratory, I. L. Boyd.	
Chemistry laboratory, E. J. Cragoe.	
Physics laboratory, R. F. Miller.	
LAWRENCE:	
University of Kansas.....	010abc, 020abct, 030abc, 040abcp, 100abc, 110abc, 120abc, 130abc, 140abc, 150abc, 160abc, 170abc, 200abc, 210abc, 220abc, 230abc, 240abc, 250abc, 260abc, 280abc, 290abc, 500achp, 510achp, 520achp, 530achp, 540achp, 550achp, 560achp, 570achp, 590achp, 600acmp, 610acmp, 620acmp, 630acmp, 640acmp, 650acmp, 680amc, 690acmp, 700i, 710i, 740i, 750i, 800ac, 810ac, 820ac, 830ac, 840ac, 850ac, 860ac, 870ac, 880abc, 890ac.
Bacteriology laboratory, N. P. Sherwood.	
Chemistry laboratory, R. Q. Brewster.	
Civil engineering laboratory, G. W. Bradshaw.	
Electrical laboratory, V. P. Hessler.	
Entomology laboratory, H. B. Hungerford.	
Experimental engineering laboratory, J. O. Maloney.	
Geological laboratory, John Frye.	
Highway engineering laboratory, W. C. McNown.	
Hydraulics laboratory, J. O. Jones.	
Mechanical laboratory, E. S. Gray.	
Metallurgical laboratory, E. D. Kinney.	
Mining laboratory, E. A. Stephenson.	
Petroleum engineering laboratory, E. A. Stephenson.	
Railway engineering laboratory, F. A. Russell.	
Research foundation, J. O. Maloney.	
State chemical research laboratory, H. C. Allen.	
State drug laboratory, J. Allen Reese.	
State food laboratory, Henry Werner.	
Water and sewage laboratory, Paul Haney.	
MANHATTAN:	
Kansas State College of Agriculture and Applied Science.....	000abc, 010abc, 020abc, 040c, 090abc, 100abc, 110abc, 120bc, 130bc, 140bc, 150bc, 160ac, 170c, 240abc, 250ab, 300acs, 320acs, 330acs, 340acs, 360acs, 370acs, 400c, 500achp, 510acp, 530ap, 550ap, 570ac, 600msx, 620msx, 630c, 680c, 690msx, 700ps, 710e, 720p, 730ps, 740p, 750p, 780mp, 800c, 820c, 830c, 840c, 850cb, 880cb, 890c.
Agricultural engineering laboratory, F. C. Fenton.	
Agricultural experiment station, R. I. Throckmorton.	
Animal husbandry laboratory, A. D. Weber.	
Bacteriology laboratory, P. L. Gainey.	
Botany laboratory, L. E. Melchers.	
Chemical engineering laboratory, F. A. Rohrman.	
Chemistry laboratory, H. H. King.	
Civil engineering laboratory, L. E. Conrad.	
Clothing and textiles laboratory, Miss Alpha Latzke.	
Dairy husbandry laboratory, F. W. Atkeson.	
Electrical laboratory, R. G. Kloeffer.	
Engineering experiment station, R. A. Seaton.	
Entomology laboratory, Roger C. Smith.	
Geology laboratory, A. B. Sperry.	
Mechanical engineering laboratory, Linn Helander.	
Milling industry laboratory, J. A. Shellenberger.	
Physics laboratory, A. B. Cardwell.	
Poultry laboratory, L. F. Payne.	
Road materials testing laboratory, C. H. Scholer.	
Seed laboratory, J. W. Zahmley.	
Shop practice laboratory, G. H. Sellers.	
Veterinary research laboratories, R. R. Dykstra.	
OTTAWA:	
Ottawa University.....	020bc, 100bc, 120b, 220c, 500c, 510c, 570c, 590c, 600cpc, 610c, 620c, 630c, 640c, 650c, 660c, 670c, 680c, 690c, 710c, 800c, 810c, 820c, 830c, 890c.
Bacteriology laboratory, Elmer E. List.	
Chemical laboratory, John A. Davis.	
Physical laboratory, W. David Bemmels.	

**KENTUCKY**

LEXINGTON:	
University of Kentucky.....	000b, 240i, 250i, 260c, 500acphm, 510acph, 530acp, 540acp, 550acp, 570acp, 590acp, 600acphmx, 610hmpx, 620hmpx, 630acphmx, 640hmx, 650acphmx, 680acphmx, 690acphmx, 810c, 830c, 850ac, 880ac.
Aeronautical engine testing laboratory, A. J. Mcyer.	
Agricultural experiment station, Thomas Cooper.	
Chemistry laboratories, Lyle R. Dawson.	
Electrical engineering laboratory, E. A. Bureau.	
Highway materials laboratory, D. V. Terrell.	
Mechanical engineering laboratory, E. B. Penrod.	
Mining, metallurgical and coal laboratories, C. S. Crouse.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## KENTUCKY—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>LOUISVILLE:</b> University of Louisville..... Biochemistry laboratory, A. W. Homberger. Biology laboratory, P. A. Davies. Chemistry laboratory, C. C. Vernon. Institute of industrial research, R. C. Ernst. Physics laboratory, R. A. Loung. School of dentistry, Raymond E. Myers. Speed scientific school, F. C. Wilkinson, Jr.	000ab, 020ab, 040cp, 060pi, 100ab, 110ab, 120ab, 130ab, 160ab, 170ab, 200epi, 250ab, 260cipab, 290ab, 390p, 410pi, 420epi, 510pi, 660ps, 800cpi, 830epi, 840cpi, 850epi, 910ps.

## LOUISIANA

<b>BATON ROUGE:</b> Louisiana State University and Agricultural and Mechanical College..... Aeronautical engineering laboratory, E. E. Maser. Agricultural experiment station, W. G. Taggart. Chemical laboratories, Messrs. Menville, Erickson, West, Fieger, Choppin, Edwards. Chemical engineering laboratories, Messrs. P. M. Horton, A. G. Keller, J. E. Coates, B. S. Pressburg, L. Cusachs, C. W. Stewart. Electrical laboratory, M. B. Voorhies. Engineering experiment station laboratory, L. J. Lasalle. Hydraulic engineering laboratory, G. N. Cox. Materials of construction laboratory, John H. Bateman. Mechanical engineering laboratory, H. W. Waterfall. Petroleum engineering laboratory, B. C. Craft, George Russell, M. F. Hawkins.	000abi, 010abci, 020abci, 040el, 110aei, 120ai, 130ai, 140cl, 150c, 160c, 240bis, 290bi, 330cp, 420p, 470e, 500epi (oil), 510epi, 570ac, 590ac, 600p, 630p, 640p, 650p, 680p, 700s, 710s, 730ps, 750s, 790ps, 800c, 810c, 820c, 830c, 840c, 850ic, 860c, 870c, 880c, 890c.
<b>PINEVILLE:</b> Louisiana College..... Biology laboratory, C. J. Cavanaugh, Hal T. Weathersby. Chemistry laboratory, Paul Godfrey. Physics laboratory, John Wilson.	010b, 020b, 160b, 170b, 870b, 880b.

## MAINE

<b>ORONO:</b> University of Maine..... Agricultural experiment station, Fred Griffee. Chemical engineering laboratory, Roy P. Whitney. Chemistry laboratory, Irwin B. Douglas. Civil engineering laboratory, W. S. Evans. Department of industrial cooperation, Roy P. Whitney. Electrical engineering and communications laboratory, W. T. Creamer. Mechanical engineering and metallographic laboratory, H. D. Watson. Pulp and paper laboratory, Roy P. Whitney. State highway laboratory, Horace A. Pratt. Technology experiment station, Paul Cloke.	010be, 020bc, 03 bc, 110e, 120c, 130c, 140c, 150c, 160c, 170c, 220e, 240ab, 280be, 290c, 400p, 410p, 470acp, 500ph, 510pc, 540ac, 570c, 590c, 600mp, 610mp, 620c, 630c, 640mp, 680c, 690c, 700p, 710e, 720p, 740p, 780p, 790p, 810e, 820c, 830c, 840pc, 850c, 870c, 880c, 890e, 910es.
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<b>WATERVILLE:</b> Colby College..... Chemistry laboratory, George F. Parmenter. Geology laboratory, Richard J. Lougee. Shannon physical laboratory, Sherwood F. Brown.	020c, 040c, 110c, 140c, 160c, 170c, 360h, 510c, 520ap, 530a, 550cap, 570a, 590ea, 630e, 640ce, 650c, 710pe, 800c, 820c, 830c, 850c, 910pehs.
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## MARYLAND

<b>BALTIMORE:</b> The Johns Hopkins University..... Chemical engineering laboratory, C. F. Bonilla. Concrete materials laboratory, J. T. Thompson. Electrical laboratory, W. B. Kouwenhoven.	400aep, 470ea, 500ehp, 510p, 520apem, 600apem, 610apem, 620apem, 630apem, 640apem, 650- apem, 680apem, 690apem, 700hs, 710cipxs, 750is, 800achp, 890abechpt, 910s, 970is.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COLLEGES—Continued****MARYLAND—Continued**

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
BALTIMORE—Continued.	
The Johns Hopkins University—Continued. General materials testing laboratory, L. Diran. Heat engines laboratory, A. G. Christie. Highway materials laboratory, J. T. Thompson. Hydraulic laboratory, F. W. Medaugh. Magnetic analysis laboratory, W. B. Kouwenhoven. Welding laboratory, T. B. Jones.	
COLLEGE PARK:	
University of Maryland..... Agricultural experiment station, W. B. Kemp. Agricultural and food laboratory, L. E. Bopst. Bacteriological laboratory, J. E. Faber. Civil engineering laboratory, S. S. Steinberg. Dairy products laboratory, Electrical engineering laboratory, S. S. Steinberg. Engineering experiment station, S. S. Steinberg. Feed, fertilizer, and lime laboratory, L. E. Bopst. Horticultural laboratory, I. C. Haut. Industrial chemical laboratory, W. J. Huff. Inorganic chemical laboratory, C. E. White. Organic chemical laboratory, N. L. Drake. Seed-testing laboratory, F. S. Holmes. Soils laboratory, R. P. Thomas. State extension service, T. B. Symons. Textile laboratory, Mrs. Emily W. Aiken.	010a, 020abc, 090cpas, 110ai, 120aip, 130aip, 240ci, 250abi, 290abi, 510p, 600p, 610p, 710s, 730ais, 810cp, 840cp, 850cpas, 880cp, 890cp.

**MASSACHUSETTS**

AMHERST:	
Massachusetts State College..... Bacteriology laboratory, L. A. Bradley. Dairy glassware and Babcock machines laboratory, P. H. Smith. Dairy products laboratory, J. H. Frandsen. Entomology laboratory, C. P. Alexander. Feed-control and fertilizer control laboratory, P. H. Smith. Horticultural manufactures laboratory, C. R. Fellers. Machinery laboratory, C. I. Guinness. Milk and water laboratory, Leon Bradley. Physics laboratory, W. F. Powers. Physiology laboratory, G. E. Gage. Plant pathology laboratory, A. V. Osmum. Poultry husbandry laboratory, Seed control laboratory, F. A. McLaughlin. Soil fertility laboratory, W. S. Eisenmenger. Veterinary science laboratory, J. B. Lentz.	000b, 020bc, 100a, 110ac, 120a, 240a, 260a, 520p, 730p, 850c, 880bc.
BOSTON:	
Boston University..... Biological laboratory, B. R. Lutz. Chemical laboratory, E. O. Holmes, Jr. Graduate school laboratory, Chester M. Alter. Medical sciences laboratory, Donald Anderson. Optical research laboratory, D. C. Macdonald. Physical laboratory, Royall Frye.	200c, 500c, 510c, 550c, 570c, 590c, 600c, 610c, 620c, 630c, 640c, 650c, 660c, 680c, 690c, 800c, 810c, 820c, 830c, 870c, 890c.
CAMBRIDGE:	
Harvard University..... Acoustical laboratory, F. V. Hunt. Aeronautical engineering laboratory, R. von Mises. Bacteriology laboratory, John C. Snyder. Biological laboratories, K. V. Thimann. Chemical laboratories, A. B. Lamb. Communication engineering laboratory, E. L. Chaffee. Dynamics laboratory, H. M. Westergaard. Electrical engineering laboratory, R. Rüdenberg. Geology and geography laboratory, R. Gibson.	000abc, 010b, 020b, 030ab, 090abet, 100abc, 120- abc, 130ab, 140ab, 150a, 160abc, 200act, 210at, 220at, 230a, 240abc, 250abc, 260a, 300abet, 310ab, 320abt, 330abt, 340ab, 390abt, 400ab, 410ab, 420ab, 430ab, 470abt, 490t, 500act, 510- actx, 520actx, 530actx, 540actx, 550acx, 560- acx, 570acx, 590acx, 600mx, 610mx, 620acmx, 630acmxt, 640acmxt, 650acmxt, 660acmx, 670- act, 680acmt, 690acmxt, 710es, 800ct, 810abet, 820ct, 830cptb, 840cpt, 850t, 860cpt, 870tb,

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## MASSACHUSETTS—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>CAMBRIDGE</b>	—Continued.
Harvard University	—Continued.
Hydraulics laboratory, H. A. Thomas, Jr.	880t, 890act, 910aispbe.
Industrial hygiene laboratory, Philip Drinker.	
Materials and structures laboratory, A. Haertlein.	
Mechanical engineering laboratory, C. H. Berry.	
Metallurgical laboratory, J. H. Hobstetter.	
Mineralogical and petrographic laboratory, E. S. Larsen.	
Nutrition laboratory, F. J. Stone.	
Physics laboratory, T. Lyman.	
Psycho-acoustic laboratory, S. S. Stevens.	
Sanitary engineering laboratory, G. M. Fair.	
Soils mechanics laboratory, A. Casagrande.	
Massachusetts Institute of Technology	.....
Division of Industrial Cooperation, N. McL. Sage.	
<b>FALL RIVER:</b>	
Bradford Durfee Technical Institute	.....
Textile chemistry laboratory, Walter E. Marston.	040cpa, 210cpa, 230cpa, 280cpa, 300cpah, 310cpah, 320cpah, 330cpah, 360cpah, 370cpah, 390cpah, 500cpa, 770ais, 800cpa, 820cpa, 830cpa, 840cpa.
Textile design laboratory, Alfred Higgins.	
Textiles—physical laboratory, William A. Goss.	
<b>LOWELL:</b>	
Lowell Textile Institute	.....
Textile chemistry laboratory, Elmer E. Fickett.	230c, 280c, 330cpa, 310cpa, 320cpa, 330cpa, 340cpa, 360cpa, 370cpa, 390cpa, 500ch, 800c, 840c, 870c.
Textile design laboratory, Vittoria Rosatto.	
Textile testing and research laboratory, Herbert J. Ball.	
Textiles—physical laboratory, Gilbert R. Merrill.	
Department of wool yarns, Russell L. Brown.	
Department of finishing, C. Leonard Glen.	
<b>MEDFORD:</b>	
Tufts College	.....
Anatomy laboratory, Benjamin Spector.	020ac, 500ac, 510ac, 520ac, 530ac, 540ac, 570ac, 590ac, 600acm, 610acm, 620acm, 630acm, 640acm, 650acm, 660acm, 680acm, 690acm, 800ac, 810ac, 820ac, 830ac, 840ac, 850ac, 860ac, 870ac, 880ac, 890ac.
Applied psychology laboratory, John L. Kennedy.	
Bacteriology laboratory, Herman R. Sweet.	
Chemical laboratory, C. F. Baker.	
Civil engineering laboratory, F. N. Weaver.	
Electrical engineering laboratory, A. H. Howell.	
Mechanical engineering laboratory, Edgar MacNaughton.	
Medical bacteriology laboratory, Ralph E. Wheeler.	
Pathology laboratory, H. E. MacMahon.	
Physics laboratory, S. S. Ballard.	
Physiology laboratory, David Rapport.	
Radio physics laboratory, J. R. Harrison.	
Strength of materials laboratory, F. N. Weaver.	
Thermodynamics laboratory, R. U. Fittz.	
<b>WELLESLEY:</b>	
Wellesley College	.....
Bacteriology laboratory, Delaphine G. Rosa.	020b, 160c.
Botany laboratory, Harriet B. Creighton.	
Chemistry laboratory, Helen T. Jones.	
Geology laboratory, Louise Kingsley.	
Physics laboratory, Alice H. Armstrong.	
Zoology laboratory, Harriet C. Waterman.	
<b>WORCESTER:</b>	
Worcester Polytechnic Institute	.....
Aerodynamics laboratory, K. G. Merriam.	020c, 030c, 040c, 060c, 120c, 130c, 140c, 150c, 160c, 170c, 200cpce, 210c, 220c, 230c, 280c, 310c, 410p, 500clp, 510cph, 520ca, 530ep, 550p, 570c, 590c, 660cpm, 610cpm, 620cpm, 630cpm, 640cpm, 650cpni, 660c, 680cpm, 690cpm, 700sh, 710pmse, 720s, 740s, 750s, 760s, 780s, 790s, 800c, 810c, 820c, 830c, 840c, 850c, 860c, 870c, 880c, 890c, 910se.
Alden hydraulic laboratory, C. M. Allen.	
Chemistry laboratory, E. D. Wilson.	
Civil engineering laboratory, A. H. Holt.	
Electrical laboratory, T. H. Morgan.	
Mechanical laboratory, F. W. Roys.	
Physics laboratory, Morton Masius.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COLLEGES—Continued****MICHIGAN**

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>ANN ARBOR:</b> University of Michigan..... Biological chemistry laboratory, H. B. Lewis. Engineering research laboratory, A. E. White. Food and drug laboratory, Lee Worrell. Pharmacology laboratory, M. H. Seevers.	010abc, 020abc, 040abc, 100ac, 120abc, 130abc, 140abc, 150ac, 160ac, 170ac, 210ac, 220ac, 230ac, 260ac, 290ac, 300ac, 310ac, 320ac, 330ac, 340ac, 360ac, 370ac, 390ac, 400ahip, 410ahip, 420ip, 430is, 470acehips, 500acehlps, 600acehmrx, 610aips, 710aeis, 760aehlps, 810abet, 870ac, 890bt.
<b>DETROIT:</b> University of Detroit..... Aeronautical laboratory, George H. Tweney. Architectural engineering laboratory, L. Robt. Blakeslee. Cement testing and concrete laboratory, Thos. C. Hanson. Chemical engineering laboratory, Chas. D. Duncombe. Chemistry laboratory, Geo. J. Shipley, S.J. Electrical laboratory, H. O. Warner. Mechanical engineering laboratory, John J. Uicker. Physics laboratory, Daniel L. Harmon. Testing materials laboratory, H. E. Mayrose.	040cpa, 100cpa, 400p, 410p, 500cpa, 510cp, 520cp, 530cp, 540cp, 550cp, 570cp, 590cp, 600cmp, 610cmp, 620cmp, 630cmp, 640cmp, 650cmp, 660cmp, 680cmp, 690cmp, 710isp, 720isp, 800- cpa, 810cpa, 820cpa, 830cpa, 840cpa, 850cpa, 860cpa, 870cpa, 880cpa, 890cpa, 910ips.
<b>EAST LANSING:</b> Michigan State College..... Agricultural experiment station, V. R. Gardner. Bacteriology laboratory, Ward Giltner. Botanical laboratory, F. L. Wynd. Chemistry laboratory, E. J. Miller. Civil engineering laboratory, Chester Allen. Electrical laboratory, L. S. Foltz. Engineering experiment station, H. B. Dirks. Farm crops laboratory, Roy Decker. Home Economics laboratory, Marie Dye. Mechanical laboratory, H. B. Dirks. Metallurgical laboratory, F. G. Sefing. Milk and cream laboratory, Earle Weaver. Wood technology laboratory, P. A. Herbert. All college research, Ernest L. Anthony.	000b, 010bc, 020cb, 030c, 040c, 100cb, 110cb, 120c, 130c, 140c, 150c, 160cb, 170cb, 220cb, 230c, 240c, 300c, 310c, 320c, 330b, 340c, 360c, 370c, 390c, 400pi, 410p, 490c, 500c, 510p, 570c, 590c, 600cpm, 610cpm, 620cpm, 630cpm, 640cpm, 650cpm, 680cpm, 690cpm, 700s, 710es, 730s, 760s, 800cb, 810cb, 820c, 830c, 840c, 850s, 880cb, 890c.
<b>HOUGHTON:</b> Michigan College of Mining and Technology..... Assaying laboratory, N. H. Manderfield. Chemistry and chemical engineering laboratory, H. L. Coles. Electrical laboratory, G. W. Swenson. Forest Products laboratory, Hereford Garland. Mechanical engineering laboratory, R. R. Seeber. Metallurgical engineering laboratory, C. T. Eddy. Mineral dressing laboratory, N. H. Manderfield. Mineralogy and petrography laboratory, A. K. Snelgrove. Physical metallurgy laboratory, C. T. Eddy. Physics laboratory, F. L. Partlo. Process metallurgy laboratory, C. T. Eddy. Protective coatings laboratory, C. T. Eddy. Pyrometric and instrumentation laboratory, C. T. Eddy. Testing materials laboratory, W. C. Polkinghorne.	040chlp, 140chlp, 160c, 170c, 200ace, 210ace, 220acc, 230cp, 400acehilp, 410acehilp, 420- acehilp, 430acep, 470p, 490ac, 500chip, 520chip, 530cp, 540chip, 550acep, 560a, 570acep, 590acep, 600acehilmps, 610acehmrx, 620ach, 630ach, 640acehilmps, 650acehmrx, 660ch, 680acehmrx, 690ch, 700hilp, 710eips, 720hilp, 740hilp, 750hilp, 760hilp, 780hilp, 790is, 800- acpls, 820c, 830c, 840cps, 870cp, 880cps, 890b.

**MINNESOTA**

<b>MINNEAPOLIS:</b> University of Minnesota..... Aeronautical engineering laboratory, J. D. Akerman. Agricultural machinery laboratory, A. J. Schwantes. Agronomy laboratory, H. K. Hayes. Analytical chemistry laboratory, I. M. Kolthoff. Bacteriology laboratory, W. P. Larson. Biochemistry laboratory, W. F. Geddes. Biophysics laboratory, K. W. Stenstrom. Cereal chemistry laboratory, W. F. Geddes. Chemical engineering laboratory, C. A. Mann.	000bp, 010bp, 020c, 040cp, 060cp, 100cp, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 200cs, 210c, 220c, 240c, 250s, 260cp, 280cp, 290cp, 300cas, 310cas, 320cas, 330cas, 340cas, 360cas, 370cas, 400p, 410p, 420p, 430p, 470ap, 480ap, 500cp, 510cps, 520cpes, 530cpes, 540cp, 570cp, 600- cehmp, 610ps, 620cehmp, 630cpm, 640cehmp, 650cehmp, 660m, 680cehmp, 690cp, 700ils, 710chilps, 720sl, 730sl, 750sil, 760sil, 770sil, 780sil, 790sil, 800bept, 810bcpt, 820cp, 830cp,
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## MINNESOTA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
MINNEAPOLIS—Continued.	
University of Minnesota—Continued.	
Dairy products laboratory, J. B. Fitch.	
Electrical instruments laboratory, M. E. Todd.	
Electric power laboratory, L. C. Caverley.	
Engineering materials laboratory, G. C. Priester.	
Food chemistry laboratory, E. B. Sandell.	
Forest products laboratory, H. Schmitz.	
Heating, ventilation and refrigeration laboratory, F. B. Rowley.	
High voltage laboratory, J. M. Bryant.	
Highway engineering laboratory, M. S. Kersten.	
Home economics laboratory, W. B. McNeal.	
Hydraulics laboratory, L. G. Straub.	
Internal combustion engines laboratory, B. J. Robertson.	
Machine design laboratory, J. J. Ryan.	
Metallography laboratory, R. L. Dowdell.	
Metallurgy laboratory, T. L. Joseph.	
Microscopic study of rocks and ores laboratory, F. F. Grout, D. M. Donaldson.	
Mining machinery laboratory, E. W. Davis.	
Nutrition laboratory, M. O. Schultze.	
Pathology laboratory, E. T. Bell.	
Pharmaceutical chemistry laboratory, Ole Gisuold, C. H. Rogers, T. O. Soine, C. O. Wilson.	
Pharmacognosy laboratory, E. B. Fischer.	
Pharmacology laboratory, R. N. Bieter.	
Pharmacy research laboratory, W. J. Hadley, C. V. Netz.	
Photometric and illumination laboratory, E. W. Johnson.	
Physiological chemistry laboratory, W. D. Armstrong.	
Physiological hygiene laboratory, A. Keys.	
Plant pathology laboratory, E. C. Stakman.	
Radio laboratory, H. E. Hartig.	
Rock analysis laboratory, F. F. Grout.	
Seeds laboratory, A. H. Larson.	
Shop machinery laboratory, R. C. Jordan.	
Soils laboratory, C. O. Rost.	
Steam and power plants laboratory, A. O. Lee.	
Structural engineering laboratory, C. A. Hughes.	
Telephone and telegraph laboratory, H. E. Hartig.	
ST. PAUL:	
Hamline University.....	
Biology laboratory, Walter A. Kenyon.	
Chemistry laboratory, Perry A. Moore.	
Physics laboratory, Kent H. Bracewell.	

## MISSISSIPPI

STATE COLLEGE:	
Mississippi State College.....	
Agricultural engineering laboratory, W. C. Howell.	
Agronomy laboratory, A. D. Suttle.	
Bacteriological laboratory, H. H. Harned.	
Botany laboratory, J. C. McKee.	
Chemical laboratory, W. F. Hand, M. P. Etheredge.	
Electrical laboratory, L. L. Patterson.	
Engineering and industrial research laboratories, L. L. Patterson, D. M. McCain.	
Entomological laboratory, Clay Lyle.	
Mechanical laboratory, A. G. Holmes.	
Physics laboratory, T. A. Rodgers.	
Structural laboratory, D. M. McCain.	
UNIVERSITY:	
University of Mississippi.....	
Biology laboratory, F. M. Hull.	
Ceramics laboratory, W. C. Morse.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## MISSISSIPPI—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>UNIVERSITY</b> —Continued. University of Mississippi—Continued. Chemistry laboratory, V. A. Coulter. Engineering laboratory, L. H. Johnson. Medicine laboratory, D. S. Pankratz. Pharmacy laboratory, E. L. Hammond. Physics laboratory, W. L. Kennon. Psychology laboratory, J. B. Wolfe.	

## MISSOURI

<b>COLUMBIA:</b> University of Missouri..... Agricultural chemistry laboratory, A. G. Hogan. Agricultural engineering laboratory, J. C. Wooley. Botany laboratory, C. M. Tucker. Chemistry laboratory, A. E. Stearn. Dairy laboratory, A. C. Ragsdale. Engineering laboratory, H. A. Curtis. Entomology laboratory, Leonard Haseman. Field crops laboratory, W. C. Etheridge. Geology laboratory, C. D. Holmes. Horticulture laboratory, T. J. Talbert. Soils laboratory, W. A. Albrecht. Veterinary laboratory, A. J. Durant. Zoology laboratory, M. J. Guthrie.	000bat, 010abct, 020abcipt, 030a, 040acpl, 050abt, 100abc, 110c, 120ac, 130ac, 140a, 170b, 220a, 230a, 240abc, 250ab, 340a, 400aips, 410aips, 420- ips, 500clpa, 510aips, 530ap, 550ap, 590ap, 600ips, 610ips, 700is, 730a, 850a, 870a, 880a, 990cpa.
<b>ROLLA:</b> Missouri School of Mines and Metallurgy..... Ceramic laboratory, Paul G. Herold. Chemical laboratory, W. T. Schrenk. Civil engineering laboratory, J. B. Butler. Electrical laboratory, F. H. Frame. Experiment station laboratory, Curtis L. Wilson. Geology laboratory, O. R. Grawe. Mechanical laboratory, A. J. Miles. Metallurgy laboratory, A. W. Schlechten. Mining laboratory, J. D. Forrester. Testing laboratory, R. Z. Williams.	400p, 410p, 500chlp, 510cpa, 520cpax, 530- pchamesx, 540ampc, 570achs, 590caehsp, 600- acmpx, 610acmpx, 620acmpx, 630acmpx, 640- acmpx, 650acmpx, 660acmpx, 680acmpx, 690- acmpx, 700s, 710s, 750s, 800c, 820c, 880bc, 910s.
<b>SPRINGFIELD:</b> Drury College..... Biology laboratory, W. D. Burbank. Chemistry laboratory, R. Neal. Geology laboratory, R. E. Smith. Physics laboratory, Oscar G. Fryer.	000b, 020b, 120b, 130b, 170bc, 250b, 510c, 820c, 830ct, 850c, 880cb, 890c, 990hs (gas).
<b>ST. LOUIS:</b> Washington University..... Research foundation, R. G. Spencer.	020cb, 030c, 300ach, 390ach, 400p, 410p, 500ch, 510p, 520ep, 530cp, 540ep, 550cp, 600cp, 620- ep, 630cpn, 640cpm, 650cpm, 690cp, 700ep, 710ep, 740p, 750p, 760p, 800c, 820c, 840c, 870c, 890c, 910s, 970s, 990s.

## MONTANA

<b>BOZEMAN:</b> Montana State College..... Agricultural engineering laboratory, Bacteriological laboratory, F. B. Cotner. Chemical engineering laboratory, Lloyd Berg. Chemistry laboratory, P. C. Gaines. Dairy products laboratory, J. A. Nelson. Electrical laboratory, E. W. Schilling. Engineering experiment station laboratory, E. R. Dodge. Entomological laboratory, H. B. Mills. Experiment station chemical laboratory, P. C. Gaines.	000b, 010bc, 020bc, 030c, 040c, 100ebi, 110c, 120bc, 130bc, 140c, 150c, 160c, 240aips, 250bi, 300cp, 360ebi, 370cp, 390cp, 410p, 500chs, 510ps, 520p, 530ep, 600cp, 610p, 620p, 630p, 640cp, 650cp, 680p, 690cp, 700ps, 710ps, 730s, 740i, 760i, 780i, 800c, 850cs, 870s, 880bs, 910is.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## MONTANA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
BOZEMAN—Continued.	
Montana State College—Continued.	
Grain inspection laboratory, D. J. Davis.	
Home economics laboratory, Jessie Richardson.	
Mechanical laboratory, F. Homann.	
Montana wool laboratory, Fred S. Willson.	
Research foundation, J. H. Pepper, Leon, Johnson.	
BUTTE:	
Montana School of Mines.....	500acmp, 510acmps, 520acm, 530achm, 540acm, 550acehm, 560achm, 570acilm, 590acmpis, 630- acemp, 640acemp, 650acemp, 660acim, 680- aceimp, 690acehimp, 740eilmps, 750eilmps, 780eilmps, 790eilmps, 850acehimp, 860aceips.
Geological laboratory, Eugene S. Perry.	
Metallurgical laboratories, John P. Spielman.	
Mineral dressing laboratories, Donald W. McGlashan.	
Mining laboratory, Oscar A. Dingman.	

## NEBRASKA

LINCOLN:	
University of Nebraska.....	000b, 020b, 100cp, 500p, 510p, 710s, 730s (tractors).
Agricultural engineering laboratory, E. E. Brackett.	
Animal pathology and hygiene laboratory, Carl Olson, Jr.	
Applied mechanics laboratory, Wm. L. DeBaufre.	
Bacteriological laboratory, G. L. Peltier.	
Botany laboratory, R. J. Pool.	
Chemistry laboratory, C. S. Hamilton.	
Civil engineering laboratory, C. E. Mickey.	
Crops and soils laboratory, F. D. Keim.	
Dairy husbandry laboratory, H. P. Davis.	
Electrical engineering laboratory, O. J. Ferguson.	
Entomology laboratory, Ephriam Hixson.	
Home economics laboratory, Margaret Fedde.	
Mechanical engineering laboratory, J. W. Haney.	
Physics laboratory, H. H. Marvin.	
Plant diseases laboratory, R. W. Goss.	
Zoology laboratory, I. H. Blake.	
OMAHA:	
Creighton University.....	200abc, 220abc, 500ac, 600ac, 800ac, 810ac, 820ac.
Bacteriological laboratory, F. C. Colein.	
Chemistry laboratory (analytical), C. L. Kenny.	
Chemistry laboratory (organic), P. E. Papadakis.	
Pharmacology laboratory, H. F. Gerald.	

## NEVADA

RENO:	
University of Nevada.....	020cb, 040cb, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 220c, 360cp, 500chl, 510p, 550c, 570c, 590cp, 600cpm, 630cpm, 640cpm, 650cpm, 690- cpm, 700s, 710s, 730s, 740s, 750s, 810c, 820c, 850c, 880cb.
Agricultural research laboratory, C. E. Fleming.	
Chemistry laboratory, George W. Sears.	
Chemistry research laboratory, M. R. Miller.	
Engineering research laboratory, S. G. Palmer.	
Foods and drugs laboratory, W. B. Adams.	
Metallurgical laboratory, Walter Palmer.	
Soils laboratory, V. E. Spencer.	
State analytical laboratory, Walter S. Palmer.	
Wool laboratory, F. W. Wilson.	

## NEW HAMPSHIRE

DURHAM:	
University of New Hampshire.....	000abci, 010abci, 020abci, 030abci, 040cip, 050ca, 060acp, 100abci, 110abci, 120abchip, 130- abchip, 140abci, 150abci, 160abci, 170bc, 210cp, 230c, 240abi, 250abi, 260ab, 280cip, 300api,
Agricultural and biological chemistry laboratory, T. G. Phillips.	
Agricultural experiment laboratory, M. G. Eastman.	
Biological laboratory, C. F. Jackson.	

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## NEW HAMPSHIRE—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>DURHAM</b> —Continued. University of New Hampshire—Continued. Chemistry laboratory, H. A. Iddles. Civil engineering laboratory, E. W. Bowler. Engineering experiment laboratory, L. E. Seeley. Geology laboratory, T. R. Meyers. Home economics laboratory, Mrs. H. F. McLaughlin.	310api, 320api, 330api, 340api, 360api, 370api, 390api, 400abci, 410i, 420ips, 430ip, 470acip, 500cih, 510ipsa, 520acph, 530ciph, 540a, 550ap, 570cip, 590acip, 600acmpi, 610acmpi, 620acmpi, 630acmpi, 640acmpi, 650acmpi, 680acmpi, 690- acmpi, 700hilps, 710eilps, 730i, 740i, 760isp, 770ispl, 780ispl, 790ispl, 820cpi, 830cpi, 840acpi, 850ci, 870cips, 880betis, 890cis, 940ips, 950ips, 990acehilmps.
<b>HANOVER:</b> Dartmouth College..... Botany laboratory, Frederick S. Page. Chemistry laboratory, Andrew J. Scarlett. Engineering laboratory, William P. Kimball. Geology laboratory, James W. Goldthwait. Medical school laboratory, Rolf C. Syvertsen. Physics laboratory, Arthur B. Meservey. Zoology laboratory, Norman K. Arnold.	570c, 640c, 650c, 680c, 690c.

## NEW JERSEY

<b>HOBOKEN:</b> Stevens Institute of Technology..... Chemical laboratory, Leslie H. Backer. Electrical laboratory, Frank C. Stockwell. Mechanical laboratory, Richard F. Deimel. Metallurgical laboratory, Alfred Bornemann. Physics laboratory, Edwin C. Schneider. Powder metallurgical laboratory, Gregory J. Comstock. Experimental towing tank, Kenneth S. M. Davidson.	200c, 210c, 220c, 230c, 260c, 280c, 290c, 300a, 310a, 320a, 330a, 340a, 360a, 370a, 390a, 400a, 410- ap, 420a, 430a, 470a, 480a, 490a, 500cph, 510- cph, 520cph, 530cph, 540cph, 550cph, 560cph, 570cph, 590cph, 600acpm, 610acpm, 620acpm, 630acpm, 640acpm, 650acpm, 660acpm, 670am, 680acpm, 690acpm, 700p, 710ps, 790ps, 800c, 810c, 820c, 830c, 840ac, 850c, 860c, 870ac, 880c, 890c, 910ps, 970sc.
<b>NEW BRUNSWICK:</b> Rutgers University and New Jersey State Agricultural Experiment Station. Agricultural biochemistry laboratory, Walter C. Russell. Bacteriology laboratory, Thomas J. Murray. Ceramics laboratory, John H. Koenig. Chemistry laboratory, Peter A. van der Meulen. Control laboratory—feeds, fertilizers, insecticides, etc., Stacy B. Randle. Dairy laboratory, John W. Bartlett. Engineering laboratories, Parker H. Daggett. Entomological laboratory, Bailey B. Pepper. Food technology laboratory, Walter A. Maclinn. Geological laboratory, Helgi Johnson. Microbiology laboratory, Selma A. Waksman. Physics laboratory, Frank G. Dunnington. Physiology and biochemistry laboratory, William H. Cole. Plant pathology laboratory, Wm. H. Martin. Plant physiology laboratory, W. Rei Robbins. Plant physiology and biochemistry laboratory in horticulture, O. Wesley Davidson. Poultry pathology laboratory, Frederick R. Beauvette. Rural engineering laboratory, Harry E. Besley. Seed laboratory, Miss Jessie G. Fiske. Soil chemistry laboratory, Firman E. Bear. Water supply and sewage disposal laboratory, Willem Rudolfs. Zoology laboratory, Thurlow C. Nelson.	000cb, 020cb, 030b, 060c, 090c, 110ca, 120b, 130b, 200c, 210c, 240cs, 250bc, 360ab, 410p, 500ac, 510acp, 520hpc, 530acp, 540c, 550i, 570c, 590aci, 600cp, 710s, 730s, 800c, 810cb, 840c, 850c, 880bc, 890c, 910s.
<b>NEWARK:</b> Newark College of Engineering..... Chemical laboratory, M. L. Branin. Chemical engineering laboratory, Joseph Joffe. Electrical laboratory, A. A. Ninis.	000c, 010c, 020c, 030c, 040c, 050c, 060c, 090c, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 200c, 210c, 220c, 230c, 240c, 250c, 260c, 280c, 290c, 300c, 310c, 320c, 330c, 340c, 360c, 370c, 390c,

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## NEW JERSEY—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
NEWARK—Continued.	
Newark College of Engineering—Continued.	
Heat treatment laboratory, Frank D. Carvin.	400cp, 410p, 500cph, 510cp, 520c, 530c, 540c, 550c, 560c, 570c, 590c, 600apmc, 610apmc, 620- apmc, 630c, 640ampc, 650c, 660c, 680c, 700ph, 710ep, 780peh, 800c, 810c, 820c, 830c, 840c, 850c, 860c, 870c, 880c, 890c, 910cehp, 950ph.
Mechanical laboratory, Frank D. Carvin.	
Physics laboratory, P. O. Hoffman.	
Strength of materials laboratory, P. O. Hoffman.	
PRINCETON:	
Princeton University . . . . .	
Aeronautical engineering laboratory, D. C. Sayre.	000bt, 100abcp, 200acehp, 210acehp, 220acehp, 390achp, 410p, 500cep, 510p, 590achp, 600acp, 610acp, 630acp, 640acp, 650acp, 680acp, 690- achp, 700p, 710cep, 720p, 740p, 760p, 800acehp, 810abchp, 820acehp, 830acehp, 840cep, 860- achp, 890acehp, 910aceipsx.
Biology laboratory, E. G. Butler.	
Chemical engineering laboratory, J. C. Elgin.	
Chemistry laboratory, H. S. Taylor.	
Electrical engineering laboratory, C. H. Willis.	
Geology laboratory, A. F. Buddington.	
Hydraulics laboratory, C. P. Kittredge.	
Materials laboratory, E. K. Timby.	
Mechanical laboratory, A. E. Sorenson.	
Physics laboratory, H. D. Smyth.	
Plastics laboratory, L. F. Rahm.	
Psychology laboratory, H. S. Langfeld.	
Soils mechanics laboratory, G. P. Tschebotarioff.	
Soils science laboratory, H. A. Winterkorn.	

## NEW MEXICO

ALBUQUERQUE:	600cmx, 860ps, 910ps, 990acemps.
New Mexico School of Mines . . . . .	000ab, 020ab, 030ab, 220c, 500ac, 510aips, 530- aipsh, 540a, 550ac, 560a, 570a, 590a, 600c, 640c, 650c, 680c, 690c, 810ac, 820c, 830c, 870ac, 890ac.
Research and development division, E. J. Workman.	
University of New Mexico . . . . .	
Aeronautical laboratory, A. D. Ford.	
Biological laboratory, E. F. Castetter.	
Chemical laboratory, Sherman E. Smith.	
Chemical engineering laboratory, T. L. Castonguay.	
Civil engineering laboratory, W. C. Wagner.	
Division of research and development, Sherman E. Smith.	
Electrical laboratory, Ralph W. Tapu.	
Engineering experiment station, M. E. Farris.	
Geology laboratory, S. A. Northrup.	
Institute of meteoritics, Lincoln LaPaz.	
Mechanical laboratory, A. D. Ford.	
Pharmacy laboratory, Roy A. Bowers.	
Physics laboratory, Victor Regener.	
State health laboratory, Miss Myrtle Greenfield.	
State highway testing laboratory, E. B. Bail.	
SOCORRO:	
New Mexico School of Mines . . . . .	500ac, 510ac, 530ac, 540ac, 550ac, 570ac, 590ac 640ac, 650ac, 660ac, 680ac, 690ac.
Bureau of mines and mineral resources, E. C. Anderson.	
STATE COLLEGE:	
New Mexico College of Agriculture and Mechanic Arts . . . . .	000bit, 010bit, 020bit, 050p, 090bit, 100ais, 110ai, 120ai, 130ai, 160c, 230acip, 240abi, 250ai, 300- ip, 360i, 370i, 390i, 400i, 410i, 500ach, 510ac, 570aic, 600achimp, 610achimp, 620achimp, 630- achimp, 640achimp, 650achimp, 660achimp, 680achimp, 690achimp, 700pi, 710pie, 720pic, 740pie, 760aeilp, 800cmh, 930ia, 970ia.
Biological laboratory, R. F. Crawford.	
Chemical laboratory, C. W. Botkin.	
Dairy laboratory, C. C. Cunningham.	
Electrical laboratory, M. A. Thomas.	
Feed and fertilizer laboratory, R. W. Ludwick.	
Mechanical laboratory, Prof. Lukens.	
Metallurgical laboratory, L. B. Shires.	
Nutrition laboratory, Miss Lantz.	
Physics laboratory, G. Gardiner.	
Seed laboratory, J. C. Overpeck, Miss McSwain.	
Soils laboratory, D. C. Hubbell.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## NEW YORK

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>ALFRED:</b>	Alfred University..... 020bc, 110c, 500c, 510ac, 530achx, 540achx, 550-acx, 590achx, 690c, 830c, 880c, 890ct, 970c.
Biology laboratory, H. O. Burdick.	
Ceramic chemistry laboratory, W. J. Rice.	
Ceramic research laboratory, C. R. Amberg.	
Clay technology laboratory, R. M. Campbell.	
General chemistry laboratory, P. C. Saunders.	
Glass technology laboratory,	
Petrography laboratory, V. D. Frechette.	
Spectroscopy laboratory, L. B. Bassett.	
<b>BROOKLYN:</b>	Polytechnic Institute of Brooklyn..... 140c, 200cep, 210c, 300cp, 360cp, 370cp, 390cp, 400cp, 410cp, 420cp, 470c, 500achip, 510achip, 520c, 530ahip, 570c, 590c, 600acimp, 610acimp, 620acimp, 630acimp, 640acimp, 650acimp, 680-acimp, 690acimp, 700hilps, 710ehis, 720hilps, 740hilps, 750ips, 780hilps, 800c, 820c, 830c, 840cp, 850c, 860c, 870c, 880c, 890c, 910aimpse, 930ap.
Analytical, C. F. Hiskey.	
Inorganic, Roland Ward.	
Organic and microscopy, W. F. Whitmore.	
Physical and highpolymer, H. F. Mark.	
Qualitative, P. E. Spoerri.	
Dynamo laboratory, C. C. Whipple.	
Electric circuits and communications laboratory, F. E. Canavaciol.	
Electronics and high frequency laboratory, Ernst Weber.	
Gas engineering and appliances laboratory, G. E. Peterson.	
Highway testing laboratory, C. E. Schaffner.	
Hydraulic laboratory, C. A. Wright.	
Industrial chemistry and chemical engineering laboratories, D. F. Othmer.	
Mechanical engineering laboratory, G. E. Peterson.	
Metallurgical laboratories, O. H. Henry.	
Photo-elastic stress analysis laboratory, R. C. Veit.	
Physical and optical laboratory, Erich Hausmann.	
Structural research laboratory, E. J. Squire.	
Pratt Institute.....	020c, 040cp, 050c, 060i, 210ci, 300cp, 390ci, 500-chilps, 510cp, 530cip, 600acheip, 610hmp, 630c, 640cep, 660c, 680cp, 700hilmps, 710ehilps, 760-ps, 780cehilps, 790ilmmps, 800ci, 830cp, 870acip, 890cp, 910ehis.
Chemical engineering laboratory, Tod G. Dixon.	
Chemistry laboratory, Fred C. Disque.	
Electrical laboratory, C. C. Carr.	
Engineering school, Tod G. Dixon.	
Foundry, Otis Benedict.	
Heat treating laboratory, J. W. Burley.	
Machine shop, Otis Benedict.	
Mechanical laboratory, A. W. Luce.	
Physics laboratory, A. W. Doll.	
Wood shops, Otis Benedict.	
<b>ITHACA:</b>	Cornell University..... 000abcs, 010abcs, 020bes, 040abc, 100bs, 110bes, 120bcs, 130bcs, 140bc, 150bcs, 160bes, 170bcs, 200bc, 220bc, 240bcs, 250bcs, 260cs, 290bcs, 390a, 400p, 410p, 420p, 470ap, 490a, 500pc, 510pc, 520a, 530p, 600cpm, 610pc, 620p, 630-pm, 640cpm, 650pm, 660pm, 680pm, 690m, 700ps, 710ps, 730s, 740s, 750ps, 760s, 800ps, 820a, 830abc, 840as, 880ab, 890abc, 900a, 910s, 990ps.
Aeronautical laboratory, W. R. Sears.	
Aeronautical laboratory (Buffalo), C. C. Furnas.	
Agricultural engineering laboratory, B. B. Robb.	
Agronomy laboratory, Richard Bradfield.	
Animal husbandry laboratory, K. L. Turk.	
Biochemistry laboratory, L. A. Maynard.	
Botany laboratory, Lewis Knudsen.	
Chemical engineering laboratory, F. H. Rhodes.	
Chemical microscopy laboratory, C. W. Mason.	
Chemistry laboratory, P. Debye.	
Communication laboratory, T. McClean.	
Dairy industry laboratory, J. W. Sherman.	
Electrical laboratory, Charles W. Burrows.	
Electronics laboratory, W. C. Ballard.	
Engineering materials laboratory, H. H. Scofield.	
Engineering soils laboratory, D. J. Belcher.	
Entomology laboratory, C. E. Pond, H. Glasgow.	
Experimental physiology and biochemistry laboratory, H. H. Dakes.	
Floriculture laboratory, L. H. McDaniels.	
Food and nutrition laboratory, Catherine Personius.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## NEW YORK—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
ITHACA—Continued.	
Cornell University—Continued.	
Food science and technology laboratory (Geneva, N. Y.), E. H.	
Stotz.	
Heating, ventilating, and refrigeration laboratory, C. O. Mackey.	
High voltage laboratory, S. W. Zimmerman.	
Highway laboratory, D. J. Belcher.	
Hydraulic laboratory, E. W. Schoder.	
Industrial electrical laboratory, B. K. Northrup.	
Institution management laboratory, Katherine Harris.	
Lubrication laboratory, J. R. Moynihan.	
Materials laboratory, J. R. Moynihan.	
Mechanics and stress analysis laboratory, J. N. Goodier.	
Metallographic laboratory, C. W. Mason.	
Metallurgy laboratory, P. Kyle.	
Pathology and bacteriology laboratory, P. Olafson.	
Photo-elastic laboratory, T. R. Cuykendall.	
Physics laboratory, L. P. Smith.	
Plant breeding laboratory, H. H. Love.	
Plant pathology laboratory, L. M. Massey.	
Plant pathology laboratory (Geneva, N. Y.), O. A. Ranking.	
Pomology laboratory, A. J. Heinicke.	
Poultry husbandry laboratory, J. H. Bruckner.	
Power-plant mechanical laboratory, C. O. Mackey.	
Rotating machinery laboratory, L. A. Burckmeyer.	
Sanitary laboratory, C. L. Walker.	
Seed investigation laboratory (Geneva, N. Y.), M. T. Munn.	
Servo-mechanism laboratory, W. E. Meserve.	
Standardization (electrical) laboratory, L. A. Burckmeyer.	
Vegetable crops laboratory, H. C. Thompson.	
Vegetable crops laboratory (Geneva, N. Y.), C. B. Sayre.	
Veterinary experimental station—bacteriology laboratory, R. R.	
Birch.	
Veterinary medicine laboratory, M. G. Fincher.	
NEW YORK CITY:	
The City College—College of the City of New York . . . . .	020b, 040c, 140c, 150c, 300p, 470p, 500cp, 510cp,
Analytical laboratory, Benjamin Harrow.	520cp, 530cp, 540cp, 550cp, 570cp, 590cp, 600-
Biological laboratory, J. A. Dawson.	cmp, 610cmp, 620cmp, 630cp, 640cp, 650cp, 680-
Chemical engineering laboratory, G. E. White.	cp, 690cp, 700s, 710s, 720s, 760s, 790s, 800c,
Electrical laboratory, H. Baum.	810c, 820c, 830c, 840c, 850c, 860c, 870c, 880c,
Materials laboratory, W. Allan.	890c, 910px, 970c.
Mechanical laboratory, E. B. Smith.	
Metallurgical laboratory, M. Kolodney.	
Physical chemical laboratory, B. Harrow.	
Physics laboratory, C. A. Corcoran.	
Columbia University . . . . .	010c, 020c, 030c, 040c, 050c, 060cp, 070c, 080c,
Chemical engineering laboratories, Arthur W. Hixson.	090c, 100c, 110c, 120c, 130c, 140c, 150c, 160c,
Chemistry laboratories, Arthur W. Thomas.	170c, 210c, 220c, 230c, 400cp, 410cp, 420c, 430c,
Civil engineering—materials, soils, photoelastic and hydraulic	470c, 480c, 490c, 500acplx, 510acpx, 520acpx,
testing laboratories, Wm. J. Krefeld.	530acpx, 540acx, 550acx, 560acx, 570acx, 590-
Electrical engineering laboratories, W. A. Curry.	acx, 600acmp, 610acmp, 620acmp, 630acmp,
Mechanical engineering laboratories, Theodore Baumeister, Jr.	640acmp, 650acmp, 660acmp, 670ces, 680acmp,
Metallurgical laboratories, Frank Foote.	690acmpx, 700hls, 710aceips, 740is, 750aps,
Mineral dressing laboratories, A. F. Taggart.	760is, 770is, 780is, 790is, 800c, 810c, 820c, 830c,
Mineralogy laboratories, Paul F. Kerr.	840c, 850c, 870c, 880c, 890c.
Mining laboratories, P. B. Bucky.	
Physics laboratories, I. I. Rabi.	
Cooper Union School of Engineering . . . . .	300p, 370p, 400p, 410p, 470p, 500p, 510p, 600pem,
Chemical, chemical engineering, and metallurgical laboratories, A.	610pem, 620pem, 630em, 640pem, 650cm, 660-
D. Radasch.	mp, 680pem, 700ps, 710es, 780ps, 790es, 800ci,
Electrical machine laboratory, Norman L. Towle.	820c, 830c, 850c, 860ci, 880c, 910es.
Hydraulics laboratory, K. C. Reynolds.	
Materials testing laboratory, R. C. Brumfield.	
Steam, automotive, and instrument and auxiliaries laboratories,	
H. F. Roemmeli.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## NEW YORK—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
NEW YORK CITY—Continued.	
Hunter College of the City of New York.....	020abc, 100c, 140c, 240c, 300ca, 330ca, 360ca, 370ca, 640c, 650c, 680c, 810c, 850c.
Biological laboratory, H. H. Clum.	
Chemical laboratory, W. W. Worsham.	
Geology and mineralogy laboratory, H. D. Thompson.	
Physiology and hygiene laboratory, B. G. Gold.	
Manhattan College.....	020abcp, 170bc, 500acip, 530acip, 560acip, 800ac,
Analytical laboratory, A. B. Kemper.	830ac, 840ac, 850ac, 870ac, 880ac.
Organic laboratory, A. Koroscil.	
New York University.....	010abi, 020abci, 030abc, 040abcpis, 050abc, 060-
Aerodynamics laboratory, F. K. Teichelmann.	abc, 100abc, 110abc, 120abc, 130abc, 140abcpis,
Aero-engine laboratory, F. K. Teichmann.	150abc, 160abc, 170abc, 200abceps, 210abc, 220-
Air conditioning laboratory, M. Giannini.	abc, 230abeps, 260abeps, 280abeps, 290abc,
Aircraft structural laboratory, C. T. Wang.	300acps, 310acps, 320acps, 330acps, 340acps,
Analytical chemistry laboratory, J. P. Simmons.	360acps, 370acps, 390acps, 400acps, 410acps,
Automotive engineering laboratory, E. H. Hamilton.	420acps, 430ps, 470acps, 480acps, 490acps, 500-
Chemical engineering laboratory, H. J. Masson.	cehlps, 510cipsh, 520acips, 530chips, 540chips,
Chemical microscopy laboratory, A. U. Seybolt.	550chipse, 560acps, 570chilps, 590chips, 600-
Electrical communications laboratory, P. Greenstein.	chimps, 610chimps, 620chimps, 630chimps, 640-
Electrical instruments laboratory, P. Greenstein.	chimps, 650chimps, 660chimps, 670eimps, 680-
Electrical transients laboratory, P. G. Cromwell.	chimps, 690chimps, 700ilmmps, 710ielmps, 720-
Experimental boiler plant laboratory, A. H. Church.	ielmps, 730ielmps, 740ielps, 750ielmps, 760ilmmps,
Fuels and combustion laboratory, R. K. Tonner.	770ielmps, 780ielmps, 790ielmps, 800bchpst,
Gage laboratory, W. A. MacCrehan.	810bcpt, 820chps, 830bchpst, 840acipst, 850cs,
Heating and ventilation laboratory, M. Giannini.	860chimps, 870abeps, 880bipepst, 890bipepst.
High voltage laboratory, H. Torgersen.	
Mechanical engineering laboratory, H. E. Wessman.	
Metallographic laboratory, A. U. Seybolt.	
Meteorological laboratory, A. F. Spilhaus.	
Organic chemical laboratory, H. C. Lindwall.	
Photo-elastic stress analysis laboratory, H. E. Wessman.	
Physics laboratory, J. C. Boyce.	
Sanitary engineering laboratory, R. Eliassen.	
Statistical analysis laboratory,	
Steam engineering laboratory, J. M. Labberton.	
Structural research laboratory, H. E. Wessman.	
Time and motion study laboratory, D. B. Porter.	
POTSDAM:	
Clarkson College of Technology.....	410p, 500cp, 510p, 570c, 590c, 600cpm, 610cm,
Chemical engineering laboratory, Charles Hecker.	620cm, 630cpm, 640cpm, 650cpm, 680cpm, 690-
Civil engineering laboratory, Frederick C. Wilson.	cpm, 700ehs, 710e, 730ehs, 740ehs, 800cp, 810-
Electrical laboratory, A. R. Powers.	cp, 820cp, 830cp, 840cp, 850cp, 870cp, 880cp,
Hydraulic laboratory, H. A. Weiss.	890c.
Mechanical engineering laboratory, H. A. Weiss.	
Physics laboratory, F. F. Piper.	
POUGHKEEPSIE:	
Vassar College.....	020c, 040c, 100c, 140c, 160c, 500c, 510c (cement),
Chemistry laboratory, Mary Langdon Sague.	600c, 620c, 630c, 640c, 650c, 680c, 710p, 890c.
Physics laboratory, Monica Healea.	
ROCHESTER:	
University of Rochester.....	000abitcp, 010abitcp, 020abitcp, 030abitcp,
Anatomy laboratory, Karl E. Mason.	040abitcp, 090abitcp, 100achp, 110achp, 120-
Bacteriology laboratory, George P. Berry.	achp, 130achp, 140achp, 160achp, 200ac, 220ct,
Biochemistry laboratory, Walter R. Bloor.	240ab, 250ab, 330a, 340a, 360ac, 400abc,
Biology laboratory, Curt Stern.	410a, 430a, 500hp, 510acp, 520pac, 530ac,
Chemistry laboratory, W. A. Noyes, Jr.	540ac, 570ac, 590ac, 600acpm, 610acpm, 620ac,
Dental research laboratory, J. E. Gilda.	630acpm, 640acpin, 650acpm, 680acpm, 690-
Engineering laboratory, John H. Belknap.	acpm, 710eps, 780sp, 800cb, 820c, 830c, 840c,
Geology laboratory, J. Edward Hoffmeister.	850cb, 880cb, 890cb, 910ai, 920ac.
Music school laboratory, Howard Hanson.	
Myodyanamics laboratory, R. P. Schwartz.	
Optics laboratory, Brian O'Brien.	
Pathology laboratory, Geo. H. Whipple.	
Physics laboratory, Geo. W. Collins.	
Physiology laboratory, W. A. Fenn.	
Psychology laboratory, Geo. R. Wendt.	
Radiology laboratory, S. L. Warren.	
Vital economics laboratory, E. S. Nasset.	
X-ray laboratory, Herbert Mermagen.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## NEW YORK—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>SARATOGA SPRINGS:</b> Skidmore College..... Bacteriology laboratory, Karl C. Hyde. Chemistry laboratory, Alton L. Markley. Textiles laboratory, Catherine A. Rockwood.	010cb, 020cb, 040cb, 100c, 110c, 140c, 160c, 300cpa, 310cpa, 320cpa, 330cpa, 340cpa, 360cpa, 370cpa, 390cpa, 400b, 500c, 600c, 630c, 640c, 650c, 680c, 820c, 850c, 870c.
<b>SCHENECTADY:</b> Union College..... Biology laboratory, Leonard B. Clark. Chemical laboratory, Charles B. Hurd. Concrete laboratory, H. G. Harlow. Electrical engineering laboratory, H. W. Bibber. Geology laboratory, E. S. C. Smith. Materials testing and mechanical laboratory, M. F. Sayre. Physics laboratory, V. Rojansky.	000ta, 010ta, 020c, 030ta, 040c, 100ca, 120ca, 130ca, 140c, 500c, 510ps, 550acpx, 600cmp, 610amps, 630ps, 640ps, 660c, 690c, 700ps, 710eps, 760ps, 780ps, 800c, 880c, 890c, 910ps.
<b>SYRACUSE:</b> Syracuse University..... Bacteriological laboratory, M. W. Jennison. Botanical laboratory, E. Reed. Chemical laboratory, C. C. Spencer. Chemical engineering laboratory, C. D. Luke. Electrical engineering laboratory, R. A. Galbraith. Materials testing laboratory, B. J. Lazan. Mechanical engineering laboratory, J. A. King. Physics laboratory, W. R. Frederickson. Zoological laboratory, W. F. Lindeman.	020c, 040c, 160c, 170c, 200c, 300ps, 390ps, 400psx, 410psx, 420psx, 470c, 500hc, 510cps, 520epsc, 530psc, 540c, 550ec, 560c, 570c, 590c, 600epsxe, 610epsxc, 620epsxc, 630epsxc, 640epsxc, 650psxc, 660c, 670ec, 680psxc, 690epsxc, 700hs, 710es, 720ps, 780eps, 790eps, 800c, 810c, 820c, 830c, 840c, 850c, 860c, 870c, 880c, 890c, 910epsh, 950cs, 970cs, 990epsx.
<b>TROY:</b> Rensselaer Polytechnic Institute..... Aeronautical laboratory, Paul E. Hemke. Biological laboratory, Robert H. Luce. Chemical engineering laboratory, Lewis S. Coonley. Chemistry laboratories, Lewis S. Coonley. Analytical chemistry, F. W. Schwartz. Inorganic chemistry, Harold M. Faigenbaum. Organic chemistry, John B. Cloke. Physical chemistry, Walter H. Bauer. Combustion laboratory, Neil P. Bailey. Electrical laboratory, Wynant J. Williams. Engineering materials laboratory, LeRoy W. Clark. Geology laboratory, Joseph L. Rosenholtz. Heat transfer laboratory, Neil P. Bailey. Liquid dynamics and hydraulics laboratory, Neil P. Bailey. Manufacturing laboratory, Neil P. Bailey. Materials testing laboratory, LeRoy W. Clark. Mechanical engineering laboratory, Neil P. Bailey. Metallurgical laboratory, Matthew A. Hunter. Physics laboratory, Robert A. Patterson. Power laboratory, Neil P. Bailey.	000ab, 010c, 020cb, 030cb, 040elb, 060p, 090b, 100c, 120abc, 140cl, 160c, 170c, 200c, 210c, 220c, 250a, 280c, 290c, 300c, 320c, 330c, 360c, 370c, 390c, 400chip, 410pi, 500ch, 510apchi, 520c, 530epi, 540c, 550c, 570c, 590c, 600chimpx, 610himp, 620chmpx, 630cmplx, 640cinpx, 650cmx, 660m, 670p, 680cmx, 690chimp, 700hilps, 710ep, 720hilps, 750ilps, 760ilps, 780ilps, 790ilps, 800c, 810c, 820c, 830c, 840ac, 850c, 860c, 870c, 880c, 890c, 910chips, 920p, 970c, 990aps.

## NORTH CAROLINA

<b>CHAPEL HILL:</b> University of North Carolina..... Bacteriology laboratory, D. A. MacPherson. Biological chemistry and nutrition laboratories, J. C. Andrews. Chemistry laboratory, R. W. Bost. Industrial pharmacy and pharmaceutical laboratory, Henry M. Busbye. Pharmaceutical chemistry laboratory, M. L. Jacobs. Physical laboratory, P. E. Shearin. Materials testing laboratory, R. M. Trimble. Sanitary engineering laboratory, H. G. Baity.	000b, 010b, 020b, 030b, 040b, 050c, 070c, 100c, 110bc, 120bc, 130bc, 140acp, 150c, 160c, 170c, 210acp, 220cpt, 230c, 410ps, 510ps, 530cp, 600ps, 710ps, 800c, 810bept, 820c, 830c, 840c, 850c, 870cpt, 880abc, 950ap.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## NORTH CAROLINA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>RALEIGH:</b> North Carolina State College of Agriculture and Engineering..... Chemical engineering laboratory, E. E. Randolph. Cotton fibre research laboratory, J. H. Moore. Engineering research laboratories, Wm. G. Van Note. Nutritional laboratory, J. O. Halverson. Soil chemistry laboratory, J. R. Piland. Textile research laboratory, Thomas Nelson.	040cpa, 060cpa, 140cpa, 160cpa, 170cpa, 210cpa, 420aips, 430aips, 470aips, 490aips, 510achsp, 520achsp, 530achps, 540acps, 550aceps, 570- achsp, 590aeps, 600plms, 610clmps, 620clmps, 630cmps, 640cmps, 680cmps, 690cmp, 700ilps, 710elips, 720ilps, 740ilps, 760ilps, 780ilps, 790- ilps, 800ac, 820ac, 830ac, 840cpa, 850cs, 880- abc, 890cps.
<b>WINSTON-SALEM:</b> Salem College..... Biological laboratory, Roy J. Campbell. Chemical laboratory, Chas. H. Higgins.	010cb, 020cb, 030cb, 040cb, 090cab, 120cb, 130cb, 140c, 150ac, 160c, 170cb, 220c, 230c, 290cab, 300ca, 360ca, 370ca, 390ca, 500c, 510c, 600c, 610c, 630c, 640c, 650c, 680c, 800c, 810c, 820c, 830ca, 840ca, 850cb, 870ca, 880cab, 890ca, 910s, 930cs, 970c, 990cabas.

## NORTH DAKOTA

<b>FARGO:</b> North Dakota Agricultural College..... Agricultural chemistry laboratory, E. P. Painter. Animal husbandry laboratory, M. L. Buchanan. Animal nutrition laboratory, F. W. Christensen. Bacteriology laboratory, C. I. Nelson. Botany department laboratory, E. A. Helgeson. Cereal chemistry laboratory, R. H. Harris. Dairy laboratory, C. Jensen. Engineering materials testing laboratory, R. M. Dolve. Plant breeding laboratory, L. R. Waldron. Poultry department laboratory, R. L. Bryant. Serum Institute laboratory, D. F. Eveleth. State seed laboratory, R. C. Hastings.	000ab, 010bc, 020bc, 030bc, 040bc, 090abc, 100- abcp, 110abcp, 120abcp, 130abcp, 140abcp, 160acp, 240abp, 250abp, 280abcp, 360ap, 600p, 620c, 630c, 640c, 680c, 700ips, 730ips, 800c, 810act, 820c, 840aips, 850c, 880abc.
<b>GRAND FORKS:</b> University of North Dakota..... Chemical laboratory, G. A. Abbott. Division of mines and mining experiment laboratory, L. C. Harrington. Public health laboratory, H. E. French.	000bt, 010bt, 100c, 110c, 120c, 130c, 140c, 150c, 160c, 170c, 210ce, 500achip, 510cp, 580cp, 540- cp, 550cp, 570cp, 590cp, 600cmplx, 610cmplx, 620cmplx, 630cmplx, 640cmplx, 650cmplx, 660cp, 680cmplx, 690cmplx, 710is, 740is, 750is, 790is, 800cp, 810c, 840cp, 880cps, 990c.

## OHIO

<b>ADA:</b> Ohio Northern University..... Biological laboratory, H. E. Huber. Chemical laboratory, Oliver E. Accountius. Civil engineering laboratory, A. R. Webb. Electrical laboratory, Ralph E. Walter. Mechanical laboratory, John A. Weishampel. Pharmaceutical laboratory, R. H. Raabe. Physics laboratory, F. L. Berger.	200c, 600p, 610p, 620p, 700p, 810acx.
<b>AKRON:</b> University of Akron..... Bacteriological laboratory, Dudley Glick. Biological laboratory, W. C. Krattz. Knight chemical laboratory, W. Cook. Testing laboratory, D. E. Anderson.	010abct, 020abct, 030abct, 040cb, 100abc, 170c, 200achps, 300aps, 320aps, 330aps, 340aps, 360- aps, 370aps, 390aps, 500cph, 510cph, 530cph, 570c, 590c, 600cp, 610c, 620c, 630c, 640c, 650c, 660c, 680c, 690c, 810c, 820c, 830c, 840c, 850c, 860cp, 870ct, 880ct, 890c.
<b>ATHENS:</b> Ohio University..... Anatomy laboratory, Rush Elliott. Bacteriology laboratory, C. Frey. Botany laboratories, A. H. Bickle, M. T. Vermillion, A. M. Wallace.	000ab, 020b, 030ab, 100cba, 110abc, 120cba, 130- cba, 140cba, 150cba, 160cba, 170cba, 240b, 250b, 290b, 300cba, 320cba, 330cba, 340cba, 390cba, 400abp, 410abp, 420ab, 430ab, 500abcp,

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## OHIO—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
ATHENS—Continued.	
Ohio University—Continued.	
Chemical laboratories, J. R. Morton, D. R. Clippinger, H. L. Dunlap, L. P. Eblin, F. B. Gullum, Wm. Burke, C. T. Anderson. Civil engineering laboratory, E. H. Gaylord. Electrical engineering laboratory, D. B. Green.	510abcp, 530abcp, 540abcp, 560abcp, 600cp, 630c, 640cp, 650c, 680c, 690c, 700s, 710eps, 800bc, 820bc, 840bc, 880bc, 890bc, 910sp, 920e, 980c.
Entomology laboratory, W. C. Stehr. Physics laboratory, O. E. McClure, H. H. Roseberry, J. E. Edwards, W. M. Pierce.	
Physiology laboratory, E. Rowles.	
Psychology laboratory, A. C. Anderson, J. R. Patrick, G.V. Paulsen.	
Zoology and embryology laboratories, F. H. Krecker, H. T. Gier.	
CINCINNATI:	
Ohio Mechanics Institute.....	160c, 280cp, 300cp, 500cp, 510cp, 600cp, 610cp, 620cp, 630cp, 640cp, 650cp, 680cp, 690cp, 710e, 870c, 880c.
Chemistry laboratory, Gordon Duval.	
Electrical laboratory, P. K. Johnson.	
Power laboratory, P. K. Johnson.	
University of Cincinnati.....	040abeptx, 050abeps, 060abeps, 090abeps, 140acp, 160a, 170c, 200cps, 210acp, 220c, 230c, 260acp, 300p, 310aps, 400p, 410p, 470s, 490s, 500achps, 510acp, 520acp, 530achp, 550p, 560p, 570ahc, 590p, 600ahcmplx, 610cp, 620cmp, 630cmp, 640acmplx, 650c, 680cmp, 690cm, 760p, 800c, 810c, 820c, 830c, 840acps, 850c, 860c, 870ac, 880abc, 890c, 910s, 920p, 930cips, 950p.
Applied science laboratory, Walter Soller.	
Biophysics laboratory, H. Kersten.	
Bureau of city tests, G. A. Gray.	
Chemical engineering laboratory, R. S. Tour.	
Chemistry laboratory, H. Green.	
Civil engineering laboratory, H. B. Luther.	
Electrical engineering laboratory, W. Osterbrock.	
Geology laboratory, J. W. Rich.	
Kettering laboratory of applied physiology, R. A. Kehoe.	
Mechanical engineering laboratory, C. A. Jocriger.	
Physics laboratory, S. J. M. Allen.	
Research foundation, Fred O'Flaherty.	
Tanners' Council research laboratory, Fred O'Flaherty.	
CLEVELAND:	
Case School of Applied Science, 10900 Euclid Avenue.....	040cp, 050c, 060cp, 140cp, 150cp, 160cp, 170cp, 200cp, 210cp, 220bcp, 230cp, 280cp, 290cp, 420p,
Chemical and chemical engineering laboratory, C. F. Prutton.	
Electrical engineering laboratory, P. L. Hoover.	
Hydraulic and sanitary engineering, G. E. Barnes.	
Mechanical engineering laboratory, G. L. Tuve.	
Mechanics and materials laboratory, H. D. Churchill.	
Metallurgy and minerals laboratory, K. H. Donaldson.	
Physics laboratory, R. S. Shankland.	
Western Reserve University.....	060abcp, 070abcp, 080abcp, 090abcp, 100abcp, 110abcp, 120abcp, 130abcp, 140abcp, 150abcp, 160abcp, 170abcp, 180abcp, 190abcp, 200abcp, 210abcp, 220abcp, 230abcp, 240abcp, 250abcp, 280abcp, 290abcp, 300abcp, 330abcp, 360abcp, 370abcp, 390abcp, 400abcp, 410abcp, 420abcp, 470abcp, 490abcp, 500abcp, 510abcp, 520abcp, 530abcp, 550abcp, 560abcp, 570abcp, 590abcp, 600abcp, 610abcp, 620abcp, 630abcp, 640abcp, 650abcp, 660abcp, 680abcp, 690abcp, 700abcp, 710abcp, 720abcp, 730abcp, 740abcp, 750abcp, 760abcp, 770abcp, 780abcp, 790abcp, 800abcp, 810abcp, 820abcp, 830abcp, 840abcp, 850abcp, 860abcp, 870abcp, 880abcp, 890abcp, 910abcp, 920abcp, 970abcp.
Analytical chemistry laboratory, V. R. Damerell.	
Chemical microscopy laboratory, Harold S. Booth.	
Colloids laboratory, V. R. Damerell.	
Electrochemistry laboratory, Frank Hovorka.	
Experimental zoology laboratory, James Gray, Daniel Quiring.	
Genetics laboratory, Anos H. Hersh.	
Inorganic chemistry laboratory, Harold S. Booth.	
Mycology laboratory, C. J. Corum.	
Organic chemistry laboratory, Herman P. Lankelma, Oliver Grummitt, Ralph Dannley.	
Physical chemistry laboratory, Frank Hovorka, Thomas Douglas, Clifford Keizer, Eugene Pace.	
Physics laboratory, Richard Beth, John T. McCarthy, Charles Fletcher.	
Plant chemistry laboratory, Franklin J. Bacon.	
COLUMBUS:	
The Ohio State University.....	000abcix, 010abci, 020abci, 030abx, 100abct, 110abct,
Agricultural chemistry laboratory, J. F. Lyman.	
Agricultural engineering laboratory, G. W. McCuen.	
Anatomy (medical) laboratory, R. C. Baker.	
Animal husbandry laboratory, D. J. Kays.	
Applied optics laboratory, G. A. Fry.	
Architecture laboratory, W. S. Ronan.	
Botany laboratory, B. S. Meyer.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## OHIO—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>COLUMBUS—Continued.</b> The Ohio State University—Continued. Ceramics laboratory, J. L. Carruthers. Chemical engineering laboratory, J. R. Withrow. Chemistry laboratory, Ed. Mack, Jr. Civil engineering laboratory, C. T. Morris. Dairying laboratory, R. B. Stoltz. Electrical engineering laboratory, E. E. Dreese. Engineering drawing laboratory, R. S. Paffenbarger. Engineering experiment station, J. R. Shank. Fine arts laboratory, J. R. Hopkins. Fisheries research laboratory, T. H. Langlois. Food and nutrition laboratory, Eva Donelson. Geology laboratory, E. M. Spieker. Home economics laboratory, Gladys Branegan. Horticulture laboratory, J. H. Gourley. Industrial engineering laboratory, P. N. Lehoczky. Mechanical engineering laboratory, A. I. Brown. Mechanics laboratory, P. W. Ott. Metallurgy laboratory, D. J. Demorest. Mine engineering laboratory, H. E. Nold. Mineralogy laboratory, W. J. McGaughey. Pathology laboratory, E. von Haam. Pharmacy laboratory, B. V. Christensen. Physics laboratory, H. H. Nielsen. Physiological chemistry and pharmacology laboratory, C. S. Smith. Physiology laboratory, F. A. Hartman. Radiation laboratory, E. E. Dreese. Research laboratory for association of dyers and cleaners, Dorothy Lyle. Soils laboratory, C. J. Willard. Textiles and clothing laboratory, Florence Petzel. Veterinary medicine laboratory, W. R. Krill. Zoology and entomology laboratories, L. H. Snyder.	570achipsx, 590achipsx, 600achipsx, 610achipsx, 620achipsx, 630achipsx, 640achipsx, 650achipsx, 680achipsx, 690achipsx, 700ailps, 710ailps, 720- ailps, 730ailps, 740ailps, 750ailps, 760ailps, 770- ailps, 780ailps, 790ailps, 800acheips, 810acheips, 820acheips, 830acheips, 840acheips, 850acheips, 860acheips, 870acheips, 880acheips, 890acheips, 910ais, 920ais, 930ais, 950ais, 970ais, 990ais.
<b>DAYTON:</b> University of Dayton..... Biological laboratory, William A. Beck. Chemical engineering laboratory, William J. Wöhleben. Civil engineering laboratory, Charles J. Belz. Electrical engineering laboratory, Louis H. Rose. Geology laboratory, Louis A. Saletel. Mechanical engineering laboratory, Andrew R. Weber. Physics laboratory, Michael B. Grandy.	020c, 040c, 090c, 110c, 140c, 150c, 160c, 170c, 200c, 260c, 280c, 370a, 390a, 400p, 410p, 500ch, 510c, 530p, 540p, 550pa, 560a, 570ac, 590ac, 600acmp, 610acmp, 620aem, 630acm, 640acmp, 650cp, 680cmp, 690cmp, 710e, 800c, 810c, 820c, 840c, 850c, 870c, 880c, 890c.
<b>DELAWARE:</b> Ohio Wesleyan University..... Botany laboratory, Claude E. O'Neal. Chemistry laboratory, William A. Manuel. Geology laboratory, Paul Shaffer. Physics laboratory, Dwight Woodbury. Psychology laboratory, Paul Fields. Zoology laboratory, Wm. F. Hahnert.	020cb, 300cp, 310cp, 390cp, 500c, 520e, 890c.
<b>GRANVILLE:</b> Denison University..... Chemistry laboratory, C. E. Ronneberg, W. A. Everhart, R. F. Freis.	170cp, 500cp, 600c, 610c, 620c, 630c, 640c, 690c, 830c, 860c, 880c, 890c, 910p, 950cp, 970cp.
<b>NEW CONCORD:</b> Muskingum College..... Biology laboratory, E. R. Bryant. Chemistry laboratory, J. G. Ralston. Geology laboratory, C. F. Moses. Physics laboratory, A. A. Benedict.	020b, 300cp, 500caph, 510ap, 520a, 540ah, 560ap, 590ap, 690ap, 710sp, 840p, 850c, 870c, 880c, 910ps.
<b>OXFORD:</b> Miami University..... Botany laboratory, J. Fisher Stanfield. Chemistry laboratory, H. C. Brill. Geology laboratory, W. H. Shideler.	000b, 010c, 020abci, 040c, 100abci, 110abci, 120- abci, 130abci, 140abct, 150bct, 160bct, 170bct, 210achpx, 220c, 240abi, 250abi, 260b, 290c, 310c, 330is, 340ai, 400abis, 410abis, 430abis, 470abis,

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## OHIO—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>OXFORD</b> —Continued.	
Miami University—Continued.	
Physics laboratory, R. L. Edwards. Physiology laboratory, W. C. McNelly. Zoology laboratory, R. A. Hefner.	480abis, 490abis, 500ac, 510ap, 520ap, 530ap, 540ap, 550ap, 560ap, 570ap, 590acp, 600acehp, 610acp, 620acehp, 630acehp, 640acehp, 650- acehp, 660c, 670a, 680acehp, 690acehp, 700s, 710es, 760s, 770s, 780s, 790s, 800c, 810c, 820c, 830c, 840c, 850bc, 870bc, 880bc, 890c, 910is, 920ip, 970ps.
<b>SPRINGFIELD</b> :	
Wittenberg College..... Biology laboratory, W. C. Beaver. Chemistry laboratory, J. W. Barker.	010b, 020b, 030b, 100c, 110c, 120b, 130b, 160cb, 170c, 300c, 320c, 330c, 360c, 500c, 570c, 590c, 600cm, 620cm, 630c, 640c, 650c, 660c, 670c, 680c, 690c, 850c, 880bc, 890c, 910i, 970i, 980b.
<b>YELLOW SPRINGS</b> :	
Antioch College..... Antioch industrial research institute, S. Vernet. Bacteriology laboratory, H. Federighi. Biology laboratory, H. Federighi. Chemistry laboratory, C. S. Adams. Electronics and electrical engineering laboratory, C. D. Barbulesco. Fels research institute, L. Sontag. Geology laboratory, A. C. Swinnerton. Glen Helen creative land use laboratory, Kenneth Hunt. Photosynthesis research, H. V. Knorr. Physics laboratory, G. E. Owen. Signal Corps quartz research project, A. C. Swinnerton.	010ab, 020ab, 030ab, 100c, 110c, 140c, 150c, 170c, 200hp, 600cma, 620cma, 630cma, 640cma, 650- cma, 680cma, 690cma, 710s, 930i.

## OKLAHOMA

<b>CHICKASHA</b> :	Oklahoma College for Women..... Chemical laboratory, Edith S. Hammond.
<b>ENID</b> :	Phillips University..... Biology laboratory, J. C. Shirley. Chemical laboratory, Kenneth Lewis. Geology laboratory, Vernon Baker. Physics laboratory.
<b>NORMAN</b> :	University of Oklahoma..... Chemical engineering laboratory, R. L. Huntington. Electrical engineering laboratory, F. G. Tappan. Highway materials laboratory, J. Ray Matlock. Materials testing laboratory, R. V. James. Mechanical engineering laboratory, E. F. Dawson. Metallurgical laboratory, Kenneth E. Rose.
<b>STILLWATER</b> :	Oklahoma Agricultural and Mechanical College..... Agricultural chemistry research laboratory, V. G. Heller. Bacteriology and veterinary science laboratory, C. H. McElroy. Cement laboratory, R. G. Saxton. Chemical engineering laboratory, O. M. Smith. Chemistry laboratory, O. M. Smith. Heat, power, and internal combustion engine laboratory, E. C. Baker.
	Hydraulics laboratory, R. G. Saxton. Materials testing laboratory, R. G. Saxton. Physics laboratory, J. H. Cloud. Road materials laboratory, R. G. Saxton. Soils laboratory, R. G. Saxton. Steam and gas laboratory, E. C. Baker.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## OREGON

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>CORVALLIS:</b> Oregon State College..... Agricultural chemistry laboratory, J. S. Butts. Agricultural engineering laboratory, J. B. Rodgers. Agricultural experiment station laboratory, Wm. A. Schoenfeld. Bacteriological laboratory, G. V. Copson. Chemical engineering laboratory, J. S. Walton, H. O. Ervin. Electrical engineering laboratory, F. O. McMillan. Engineering experiment station laboratory, S. H. Graf. Food technology laboratory, E. H. Wiegand. Hydraulic laboratory, C. A. Mockmore. Materials testing laboratory, S. H. Graf. Mechanical engineering laboratory, S. H. Graf. Mines laboratory, J. S. Walton. Oregon forest products laboratory, Paul M. Dunn. Plant pathology laboratory, C. E. Owens. Sea foods laboratory, E. W. Harvey. Seed testing laboratory, D. D. Hill. Soils laboratory, W. L. Powers. Veterinary medicine laboratory, J. N. Shaw. Wood chemistry laboratory, E. F. Kurth. Wood technology laboratory, P. B. Proctor.	000abc, 010abc, 020abc, 030abc, 040abc, 090abc, 100abc, 110abc, 120abc, 130abc, 140c, 170bc, 210cp, 220cp, 230ac, 250ab, 290abc, 330abc, 340abc, 360abc, 400acsp, 410acsp, 420ps, 430is, 470cps, 500eps, 510cph, 530eph, 570c, 590cph, 600acpx, 610acpxm, 620acpxm, 630acpxm, 640- acpxm, 650acpxm, 680acpxsm, 690acpxm, 710es, 720s, 740is, 750s, 760is, 780is, 820c, 830c, 840cs, 850c, 860s, 880cs, 890cps, 910eps.
<b>PORLAND:</b> Multnomah College..... Aeronautical instruments laboratory, Donald Balsilie. Civil engineering laboratory, Nathan Bickford. Electrical laboratory, Walter Haynes.	410p, 510ch, 600p, 710cips.

## PENNSYLVANIA

<b>BETHLEHEM:</b> Lehigh University..... Bacteriology laboratory, S. J. Thomas. Chemical laboratory, H. A. Neville. Electrical laboratory, L. V. Bewley. Fuel laboratory, A. C. Callen. Mechanical laboratory, F. V. Larkin. Metallurgy laboratory, G. E. Doan. Physics laboratory, C. C. Bidwell. Structural materials laboratory, Hale Sutherland.	020bcp, 040cp, 050c, 060cp, 140cp, 160cp, 410p, 500cp, 510p, 600cpm, 610cpm, 620cpm, 630cpm, 640cpm, 650cpm, 680cpm, 690cpm, 700s, 710es, 750s, 800cp, 810bc, 820c, 830c, 840c, 870c, 890c, 910sc.
<b>EASTON:</b> Lafayette College..... Chemical engineering laboratory, E. L. McMillen. Chemistry laboratory, J. H. Wilson. Electrical engineering laboratory, M. King. Mechanical laboratory, P. B. Eaton. Mining and metallurgy laboratory, W. B. Plank. Physics laboratory, C. M. Gordon.	330cp (rope), 410p, 420p, 500ceph, 510cep, 550e, 600cehmp, 610ep, 640cemp, 680cemp, 690cemp, 700hs, 710s, 750s, 880c, 890c, 910ep, 920p.
<b>GETTYSBURG:</b> Gettysburg College..... Chemical laboratory, John B. Zinn, Charles A. Sloat, Glenn Weiland.	020c, 140c, 170c, 410p, 510p, 600p, 850c.
<b>LEWISBURG:</b> Bucknell University..... Bacteriological laboratory, J. W. Rice. Biological laboratory, N. H. Stewart. Botany laboratory, W. E. Manning. Chemical laboratory, Lester Kieft. Chemical engineering laboratory, A. H. Cooper. Civil engineering laboratory, D. M. Griffith. Electrical engineering laboratory, G. A. Irland. Mechanical engineering laboratory, J. C. Reed. Pattern making and foundry laboratory, G. M. Kunkel. Physics laboratory, W. B. Lowry. Testing materials laboratory, C. H. Kindig.	010b, 020bc, 140cp, 160b, 200chps, 210p, 320p, 330p, 400pi, 410pi, 420pi, 430pi, 470b, 490b, 500chps, 510ip, 520ip, 530ip, 600chimp, 610- chimp, 620chimp, 630chimp, 640chimp, 650- chimp, 680chimp, 690chimp, 780hims, 800cp, 820cp, 840chps, 850c, 870bcp, 880b, 890chp.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## PENNSYLVANIA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>PHILADELPHIA:</b>	
Drexel Institute of Technology..... Biological science laboratory, Walter L. Obold. Chemical laboratory, L. D. Stratton. Electrical engineering laboratory, E. O. Lange. Foods and textiles laboratories, Miss Ardenia Chapman. Mechanical engineering laboratory, J. H. Billings. Metallurgical engineering laboratory, A. W. Grosvenor. Testing laboratory, H. L. Bowman.	010abc, 020abc, 030abc, 040abc, 120abc, 130abc, 160abc, 300abcp, 330abcp, 360abcp, 370abcp, 390abcp, 500chis, 510cpm, 530c, 540ac, 550c, 570c, 590ac, 600cpm, 610cpm, 620cpm, 630cpm, 640cpm, 650cpm, 680cpm, 690cpm, 700ips, 710- cis, 720eps, 740eips, 760eips, 770eps, 780eps, 790eips, 800c, 820c, 830c, 840c, 850c, 870c, 880c, 890c.
Philadelphia Textile School.....	300acp, 310acp, 320acp, 330acp, 340acp, 360acp, 370acp, 390acp, 800c.
University of Pennsylvania..... Chemical engineering laboratory, M. C. Molstad. Chemistry laboratory, Hiram S. Lukens. Civil engineering laboratory, E. F. Stover. Communications laboratory, Ralph M. Showers. Computing laboratory, C. N. Weygandt. Electric machinery laboratory, G. N. Weygandt. Electrical engineering laboratory, Harold Pender. Electronics laboratory, L. P. Tabor. High-frequency laboratory, Ralph M. Showers. Hydraulics laboratory, W. S. Pardoe. Materials testing laboratory, E. F. Stover. Mechanical engineering laboratory, J. A. Goff. Mechanical laboratory, W. S. Sloan. Metallurgy laboratory, R. M. Brick. Physics laboratory, G. P. Harnwell. Servomechanisms laboratory, C. N. Weygandt. Thermodynamics research laboratory, John A. Goff. X-ray research laboratory, C. Weyl.	140c, 150c, 160c, 170c, 200ep, 210ep, 300e, 320e, 330e, 360e, 370e, 400p, 470e, 490e, 500c, 510ep, 520ep, 530e, 540e, 550e, 560e, 570e, 590e, 600- ecpmx, 610ecm, 620ecm, 630ecpmx, 640p, 660ec, 670e, 680ecpx, 690ecm, 700e, 710e, 720e, 780e, 790e, 800ec, 810c, 820ec, 830ec, 840ec, 850c, 860c, 870c, 880ec, 890ec, 910e, 920e, 940e, 950e, 970c, 990e.
<b>PITTSBURGH:</b>	
University of Pittsburgh..... Analytical chemistry laboratory, Carl J. Engelder. Anatomy laboratory, Davenport Hooker. Animal pathology laboratory, R. Walter Schlesinger. Bacteriology laboratory, Kenneth Wertman. Biochemistry laboratory, Richard H. McCoy. Biophysical laboratory, Max A. Lauffer. Botanical laboratory, W. H. Emig. Chemical engineering laboratories, James Coull. Electrical engineering laboratories, H. E. Dyche. Electron microscope laboratory, H. C. O'Brien. Electronics laboratory, A. J. Allen. Embryology laboratory, Peter Gray. Fats and oils laboratory, B. F. Daubert. Genetics laboratory, G. M. McKinley. Geology laboratory, Richard E. Sherrill. Glass laboratory, Alexander Silverman. Inorganic chemistry laboratory, Douglas G. Nicholson. Metallurgical engineering laboratory, G. R. Fitterer. Microscopy laboratory, Hurd W. Safford. Nucleonics laboratory, A. J. Allen. Observatory (Allegheny), N. E. Wagman. Organic chemistry laboratory, Klaus Hofmann. Petroleum engineering laboratory, Holbrook Botset. Physiology laboratory, E. Alfred Wolf. Plant pathology laboratory, W. Conway Price. Quantitative organic microanalytical laboratory, George Stragand. Seismograph laboratory, W. T. Wzymanowski. Spectroscopy laboratory, Mary E. Warga. Thermochemistry laboratory, Gebhard Stegeman. Tropical testing laboratory, Peter Gray. X-ray laboratory, S. S. Sidhu.	000bcx, 010bcx, 020bcx, 030bcx, 040abcehipstx, 090bcx, 100bcx, 110bcx, 120bcx, 130bcx, 140- abchpsx, 150bcx, 160abcehpsx, 170bcx, 200- behmpx, 210bcx, 220bcx, 230bcx, 240bcx, 280- bcx, 290bcx, 300abcx, 310bcx, 320bcx, 330bcx, 340bcx, 360bcx, 370bcx, 390bcx, 400cx, 410cx, 420cx, 430cx, 470ex, 500achlpsx, 510cpx, 520- cephx, 530cephx, 540cx, 550cx, 560cx, 570x, 590cx, 600acehmpsx, 610acehmpsx, 620- acehmpsx, 630acehmpsx, 640cehmpx, 650- cehmpx, 660ex, 670x, 680cepx, 690cepx, 700ex, 710ex, 750ps, 800cpx, 810abchptx, 820abcpstx, 830abceptx, 840cx, 850cx, 860cx, 870cx, 880cx, 890cx, 910abchpsx.

<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COLLEGES—Continued****PENNSYLVANIA—Continued**

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
STATE COLLEGE:	000cpax, 010bcap, 020bcap, 030bcap, 040bcap, 090bcap, 100cpa, 110cpa, 120cpa, 130cpa, 140cpa, 150cpa, 160cpa, 170ca, 400ap, 410ap, 500chap, 510cpalsx, 520acpxh, 530aips, 540acpxh, 550ai, 560ai, 570ep, 590cp, 600acips, 610acipsmx, 620acipsmx, 630cmpx, 640acipsmx, 650achpmx, 660cpm, 680chempx, 690chempx, 700aipshl, 710aipshl, 720aipshl, 760aipshl, 800cp.
The Pennsylvania State College.....	Aerial photogrammetry laboratory, E. W. Miller.
Aerodynamics laboratory, D. J. Gildea.	Agricultural biochemistry laboratory, R. A. Dutcher.
Airplane structures laboratory, D. J. Peery.	Analytical service laboratory, A. L. Haskins.
Applied geophysics and geochemistry laboratory, S. J. Pirson.	Astronomical industries laboratory, H. L. Yeagley.
Bacteriology and immunology laboratory, M. A. Farrell.	Bacteriology and immunology laboratory, M. A. Farrell.
Chemical engineering laboratory, D. S. Cryder.	Chemical engineering laboratory, D. S. Cryder.
Chemical metallurgy laboratory, H. M. Davis.	Chemical microscopy laboratory, M. L. Willard.
Coal constitution laboratory, C. R. Kinney.	Coal preparation laboratory, D. R. Mitchell.
Cryogenic laboratory, J. G. Aston.	Cryogenic laboratory, J. G. Aston.
Dairy bacteriology laboratory, T. G. Anderson.	Detergency testing and research laboratory, I. S. Oesterling.
Diagnostic laboratory, Grace W. Koch.	Diagnostic laboratory, Grace W. Koch.
Diesel research laboratory, P. H. Schweitzer.	Dynamic properties of materials laboratory, J. A. Sauer.
Electric power machinery laboratory, A. H. Forbes.	Electrical standards laboratory, D. L. Markle.
Electron microscopy and X-ray laboratory, T. F. Bates.	Engineering instruments laboratory, K. J. DeJuhasz.
Fermentation and antibiotic laboratory, R. W. Stone.	Fluorine laboratories, J. H. Simons.
Food analytical methods laboratory, — Lemley.	Food and water bacteriology laboratory, H. D. McAuliffe.
Foods and cereal technology laboratory, H. O. Triebold.	Foods and nutrition laboratory, R. A. Dutcher.
Framed structures laboratory, R. E. Minshall.	Fuels and lubricants laboratory, N. R. Sparks.
Fuels utilization laboratory, C. C. Wright.	General ceramics laboratory, E. C. Henry.
Glass science laboratory, W. Weyl.	High pressure laboratory, Wayne Webb.
High temperature petrography laboratory, E. F. Osborn.	Highway laboratory, J. E. Kaulfuss.
Human nutrition laboratory, Pauline Beery Mack.	Hydraulic laboratory, J. R. Villemonte.
Illumination laboratory, R. L. Markle.	Industrial engineering shops laboratories, C. E. Bullinger.
Inorganic chemistry laboratory, G. C. Chandlee.	Insecticides and fungicides laboratory, D. E. H. Frear.
Map intelligence laboratory, E. W. Miller.	Materials testing laboratory, R. K. Vierck.
Meat products laboratory, R. C. Miller.	Mechanical engineering power laboratory, E. E. Amborsius.
Mechanical metallurgy laboratory, M. Gensamer.	Mechanical properties of materials laboratories, J. Marin.
Metals finishing and corrosion laboratory, H. J. Read.	Metals finishing and corrosion laboratory, H. J. Read.
Micro-analytical laboratory, G. H. Fleming.	Mine air conditioning laboratory, A. E. Flowers.
Mine mechanization laboratory, R. D. Snouffer.	Mine roof control laboratory, R. D. Snouffer.
Mineral beneficiation laboratory, S. C. Sun.	Mineral economics laboratory, W. M. Myers.
Molecular diffusion laboratory, H. S. Coleman.	Natural gas production laboratory, R. F. Nielsen.
Non-fuel uses of mineral fuels laboratory, H. B. Charmbury.	Organic gage laboratory, C. E. Bullinger.
Organic chemistry laboratory, F. C. Whitmore.	Organic chemistry of biological products laboratory, R. B. Wagner.
Organic chemistry of biological products laboratory, R. B. Wagner.	Petroleum core testing laboratory, K. W. Smith.
Petroleum production laboratory, R. A. Morse.	Petroleum production laboratory, R. A. Morse.
Petroleum refining laboratory, M. R. Fenske.	

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## PENNSYLVANIA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
STATE COLLEGE—Continued.	
The Pennsylvania State College—Continued.	
Petroleum reservoir rock laboratory, P. D. Krynine.	
Physical chemistry laboratory, J. H. Simons.	
Physical metallurgy laboratory, J. R. Low, Jr.	
Physical meteorological laboratory, H. Neuberger.	
Radar laboratory, F. T. Hall.	
Radio laboratory, A. H. Waynick.	
Refractories and slags laboratories, S. Zerfoss.	
Sanitary engineering laboratory, B. A. Whisler.	
Secondary recovery of petroleum laboratory, S. T. Yuster.	
Sedimentary petrology laboratory, P. D. Krynine.	
Seismological station laboratory, S. J. Pirson.	
Servo mechanisms laboratory, H. I. Tarpley.	
Soil and plant bacteriology laboratory, J. J. Reid.	
Soil mechanics laboratory, R. E. Minshall.	
Soils and plant chemistry, C. O. Jensen.	
Spectroscopic laboratory, D. H. Rank.	
Stoker development laboratory, T. S. Spicer.	
Stratigraphic geology laboratory, F. M. Swartz.	
Supersonics laboratory, W. H. Pielemeier.	
Synoptic meteorological laboratory, F. B. Stephens.	
Telephone laboratory, D. Van Meter.	
Textile chemistry laboratory, Pauline Beery Mack.	
Thermal laboratory, F. G. Hechler.	
Time and motion study laboratory, C. E. Bullinger.	
Underwater sound testing laboratory, E. A. Walker.	
Virus research laboratory, D. W. McKinstry.	
Vitamins and nutrition laboratory, N. B. Guerrant.	
War acoustics laboratory, H. K. Schilling.	
War optics laboratory, H. S. Coleman.	
X-ray laboratory, W. P. Davey.	
SWARTHMORE:	
Swarthmore College.....	410p, 500p, 510p, 600mp, 610p, 630mp, 640mp, 680mp, 690mp, 700p, 710es.
Civil engineering laboratory, Samuel T. Carpenter.	
Electrical engineering laboratory, H. M. Jenkins.	
Mechanical engineering laboratory, Mark B. Moore.	

## RHODE ISLAND

KINGSTON:	Rhode Island State College..... Agricultural experiment station laboratory, M. H. Campbell. Chemical laboratory, W. George Parks. Chemical engineering laboratory, T. S. Crawford. Civil engineering laboratory, Frank W. Stubbs, Jr. Electrical laboratory, Wesley B. Hall. Engineering experiment station, T. S. Crawford. Marine biological laboratory, R. A. DeWolf. Materials testing laboratory, F. W. Stubbs, Jr. Radio and electronics laboratory, Wesley B. Hall.	000bet, 020c, 040bc, 100bci, 110bc, 120bc, 130bc, 140c, 200c, 210c, 240b, 250bi, 280c, 290bc, 300ac, 390cp, 400p, 470ac, 480ac, 490ac, 500cp, 510p, 530ac, 570ac, 600p, 630b, 640b, 650b, 680b, 690b, 710e, 800b, 810bet, 820bt, 830bet, 840spa, 850besip, 880b, 890bc, 910bpst, 930cs, 950b, 970c.
PROVIDENCE:	Brown University..... Astronomical observatory, C. H. Smiley. Biological laboratory, J. Walter Wilson. Botany laboratory, Walter H. Snell. Chemistry laboratory, R. F. Chambers. Engineering laboratory, L. T. Bohl. Geological laboratory, A. W. Quinn. Physical laboratory, R. B. Lindsay.	300pc, 320p, 340p, 360p, 370pc, 400bsp, 410p, 470c, 500ap, 510aps, 520aps, 530a, 540a, 550a, 560a, 570a, 590a, 600mpsx, 610mpsx, 620mpsx, 640- mpsx, 650x, 670s, 680x, 690a, 700psi, 710cips, 720psi, 730psi, 740psi, 750psi, 760psi, 770psi, 780psi, 800c, 820c, 830c, 910aips.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## SOUTH CAROLINA

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>CHARLESTON:</b>	
The Citadel..... Chemistry laboratory, R. M. Byrd. Civil engineering laboratory, L. S. LeTellier. Physics laboratory, C. T. Razor.	300c, 400pi, 410pi, 500c, 510cpi, 530cpi, 600cpi, 610c, 620c, 630c, 640c, 650c, 680c, 710s, 820c, 840c, 850c, 880c, 910s.
<b>CLEMSON COLLEGE:</b>	
Clemson Agricultural College..... Agricultural engineering laboratory, G. B. Nutt. Botany and bacteriology laboratory, W. B. Aull. Chemical laboratory, H. J. Webb. Civil engineering laboratory, E. L. Clarke. Electrical laboratory, S. R. Rhodes. Engineering experiment station laboratory, S. B. Earle. Fertilizer analysis laboratory, B. D. Cloaninger. Geology and mineralogy laboratory, F. H. H. Calhoun. Mechanical laboratory, B. E. Fernow. Research laboratory, H. P. Cooper. Textile laboratory, H. M. Brown.	020abc, 100c, 110c, 120c, 160b, 170bc, 260c, 280c, 300aip, 310aip, 320aip, 330aip, 390aip, 410p, 500ac, 510p, 520c, 530ip, 540ip, 550ip, 560ip, 570ip, 590ipc, 600acp, 610aep, 620ac, 630ac, 640ac, 650ac, 680ac, 690ac, 730s, 800c, 810c, 820e, 830c, 840c, 850c, 870c, 880cb, 890c.
<b>COLUMBIA:</b>	
University of South Carolina..... Biological laboratory, W. E. Hoy. Chemical laboratory, G. F. Lipscomb. Electrical engineering laboratory, S. Litman. Geology laboratory, Stephen Taber. Hydraulic laboratory, R. A. Miller. Internal combustion engine laboratory, F. B. Herty. Mineralogical laboratory, Stephen Taber. Pharmacy laboratory, E. T. Motley. Physics laboratory, C. F. Mercer. Steam engine laboratory, F. B. Herter. Strength of materials laboratory, R. A. Miller.	200acps, 210acps, 220cap, 280cp, 390cp, 500cp, 510cp, 520cp, 530cp, 540cp, 550cp, 570cp, 590c, 710el, 720e, 740e, 750e, 760e, 770e, 790es, 800cp, 810cp, 820cpi, 830c, 870cp, 910aelps.
<b>GREENVILLE:</b>	
Furman University..... Botany laboratory, P. L. Fisher. Chemistry laboratory, J. R. Sampey. Geology laboratory, A. T. Navarre. Physics laboratory, J. R. Patty. Zoology laboratory, C. D. Riddle.	000a, 100a, 110a, 120a, 130a, 240a, 290a, 500a, 510ac, 530ac, 540a, 550a, 560a, 570ac, 590a, 600c, 640c, 650c, 680c, 690c, 830c.
<b>SPARTANBURG:</b>	
Wofford College..... Biological laboratory, R. A. Patterson. Chemical laboratory, R. A. Patterson. Electrical laboratory, E. H. Shuler. Physics laboratory, Charles S. Pettis.	710s (motors, generators, small), 850c, 880c.

## SOUTH DAKOTA

<b>BROOKINGS:</b> South Dakota State College..... Animal health laboratory, G. S. Harshfield. Bacteriology laboratory, A. R. Grismer. Botanical laboratory, W. L. Miller. Cement concrete testing laboratory, H. B. Blodgett. Chemical laboratory, A. L. Moxon. Dairy products laboratory, Philip L. Kelly. Drug assay laboratory, F. J. Le Blanc. Electrical machinery laboratory, W. H. Gamble. Fuel and steam laboratory, L. E. Amidon. Nutrition laboratory, Seed testing laboratory, W. W. Worzella. Textile laboratory, Lillian Lund. Zoology-entomology laboratory, H. C. Severin.	000cb, 010cb, 020cb, 100cb, 110cb, 220cp, 240cp, 250cp, 300cp, 500h, 510cp, 530cp, 600cp, 610p, 710es, 730s, 830c, 850c, 880cb.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## SOUTH DAKOTA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>RAPID CITY:</b>	
South Dakota School of Mines and Technology..... Chemical engineering laboratory, Andrew Karsten. Chemical laboratory, G. G. Osterhoff. Civil engineering laboratory, E. D. Dako. Electrical laboratory, J. O. Kammerman. Metallurgical laboratory, Bancroft Gore. Mining experiment station laboratory, Charles Bentley. Mining laboratory, F. C. Lincoln. Physics laboratory, W. A. Rosenblith.	410p, 500eph, 510ep, 600cpm, 620cpm, 630cpm, 640cpm, 650cpm, 680cpm, 690cpm, 700s, 710s, 820c, 830c, 880c, 910s.
<b>VERMILLION:</b>	
University of South Dakota..... Department of chemistry laboratory, Arthur M. Pardes. Physical and mechanical testing laboratory, Harold E. Brookman. State chemical laboratory, Guy C. Frary. State geological survey laboratory, E. P. Rothrock. State health laboratory, J. C. Ohlmacher.	020cb, 040c, 100c, 110c, 140c, 150c, 160c, 170cb, 500c, 510p, 530p, 810c, 820c, 830c, 840c, 850c, 870c, 880c, 890c.

## TENNESSEE

<b>KNOXVILLE:</b>	
University of Tennessee..... Bacteriology laboratory, D. F. Holtzman. Biochemistry laboratory, T. P. Nash, Jr. (Memphis). Chemical engineering laboratory, R. M. Boarts. Civil engineering laboratory, A. T. Granger. Electrical laboratory, E. D. Shipley. Engineering experiment station laboratory, W. H. Baskerville. Hydraulic laboratory, C. S. Camp. Materials testing laboratory, H. B. Aikin. Mechanical laboratory, R. W. Morton. Pathology laboratory, H. C. Schmeisser (Memphis). Pharmacology laboratory, J. Paul Quigley (Memphis). Pharmacy laboratory, R. L. Crowe (Memphis). Physics laboratory, K. L. Hertel. Physiology laboratory, L. A. Crandall, Jr. (Memphis).	000b, 010bet, 020bet, 030bet, 040bet, 120bet, 130bet, 140bet, 150bet, 160bet, 170bet, 400p, 410p, 510p, 530p, 600p, 610p, 640p, 880bet.
<b>MARYVILLE:</b>	
Maryville College..... Biology labofatory, Susan A. Green. Chemistry laboratory, George D. Howell. Physics laboratory, Edgar R. Walker.	170ae.
<b>NASHVILLE:</b>	
Vanderbilt University..... Analytical chemistry laboratory, F. L. Conover. Biological laboratory, C. S. Shoop. Engineering laboratory, F. J. Lewis. General chemistry laboratory, George M. Smith. Geological laboratory, W. B. Jewell. Industrial chemistry laboratory, J. M. Breckenridge. Metallurgical laboratory, W. P. Fishel. Organic chemistry laboratory, A. W. Ingersoll. Physical chemistry laboratory, L. J. Bircher.	000a, 010ac, 140acp, 160cp, 470acp, 500chip, 510ip, 520p, 530chp, 540acp, 550acp, 560a, 570ch, 590chp, 600cip, 610chm, 620ch, 630chm, 680chm, 690chm, 800cs, 810c, 820c, 830c, 840cs, 850c, 860c, 870c, 880c, 890c, 910s, 970cs.

## TEXAS

<b>AUSTIN:</b>	
University of Texas..... Bureau of economic geology, J. T. Lonsdale. Bureau of engineering research, W. R. Woolrich. Bureau of industrial chemistry, (vacant).	140achp, 200achp, 400acip, 410acip, 500acheimp, 510acheimp, 520acheimp, 530acheimp, 550- acheimp, 570acheimp, 600acehilmp, 610ip, 620- ahimp, 630ahimp, 640ahimp, 650ahimp, 680- ahimp, 710aemp, 740aemp, 910aemp.

<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COLLEGES—Continued****TEXAS—Continued**

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
BELTON:	020ac, 100ac, 140ac, 150ac, 160ac, 170ac, 300ac, 310ac, 320ac, 330ac, 340ac, 360ac, 370ac, 390ac, 600ac, 610ac, 640ac, 870ac.
Mary Hardin Baylor College..... Botany laboratory, Lucile Capt. Chemistry laboratory, Amy Le Vesconte. Nutrition laboratory, Rowena Anderson. Physics laboratory, Hazel Mason. Textiles laboratory, Lida Muse. Zoology laboratory, Anna Mae Melton.	
BROWNSWOOD:	630cm, 640cm, 650cm, 680cm, 690cm, 800cpba. Howard Payne College..... Biology laboratory, Mrs. H. B. Ramsour. Chemistry laboratory, O. E. Winebrenner. Physics laboratory, J. M. Beckett.
COLLEGE STATION:	010b, 020cb, 140c, 300p, 360p, 420p, 480p, 500cpa, 510acip, 600p, 730p, 800cpa, 850c. Agricultural and Mechanical College of Texas..... A. & M. research foundation laboratory, A. A. Jakkula. Agricultural engineering laboratory, F. R. Jones. Agricultural experiment station laboratory, R. D. Lewis. Chemical engineering laboratory, J. D. Lindsay. Chemurgic research laboratory, B. R. Holland. Civil engineering laboratory, S. R. Wright. Cotton fiber and spinning laboratory, L. J. Watkins. Cottonseed products research laboratory, A. C. Wamble. Engineering experiment station laboratory, H. W. Barlow. Forest products research laboratory, E. D. Marshall. Meats laboratory, R. W. Snyder. Metallurgical laboratory, C. W. Crawford. State chemist laboratory, J. F. Fudge. Wool laboratory, J. M. Jones.
GEORGETOWN:	030ab, 140c, 500c, 510c, 600c, 630ac, 640c, 650c, 680c, 910p. Southwestern University..... Biological laboratory, H. C. Sivells. Chemistry laboratory, J. C. Godbey. Geology laboratory, H. R. Blank. Physics laboratory, A. P. Friesen.
HOUSTON:	000ct, 010ct, 020ct, 100c, 110c, 140c, 510cpm, 530c, 600pm, 620pm, 630pm, 640pm, 650pm, 680pm, 690pm, 700pm, 710pm, 740pm, 760pm, 780pm, 790pm, 810c, 850c, 870c, 880c, 890c. The Rice Institute..... Biology laboratory, A. C. Chandler. Chemical engineering laboratory, A. J. Hartsook. Chemistry laboratory, Harry B. Weiser. Civil engineering laboratory, L. B. Ryon. Electrical engineering laboratory, J. S. Waters. Mechanical engineering laboratory, L. B. Ryon. Physics laboratory, H. A. Wilson.
LUBBOCK:	000b, 010b, 020bicp, 100c, 110bci, 120c, 130c, 140c, 250i, 300aips, 310aips, 360apsc, 390ips, 510p, 530p, 700s, 710es, 730is, 770is, 800c, 820c, 830c, 840c, 850c, 880c, 890c. Texas Technological College..... Biology laboratory, R. A. Studhalter. Chemistry laboratory, R. C. Goodwin. Dairy laboratory, K. M. Renner. Electrical laboratory, C. V. Bullen. Geology laboratory, L. T. Patton. Grain laboratory, W. A. Young. Materials testing laboratory, J. H. Murdough. Meats laboratory, F. G. Harbaugh. Mechanical engineering laboratory, J. C. Hardgrave. Physics laboratory, C. C. Schmidt. Textiles laboratory, L. E. Parsons.
SAN ANTONIO:	020c, 040c, 140c, 500c, 860c, 870c, 910c. Trinity University..... Biology laboratory, Jacob Urich. Chemistry laboratory, W. C. McGavock. Geology laboratory, S. H. Ross. Home economics laboratory, Ada Ruth Bryan. Physics laboratory, S. H. Ross.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## TEXAS—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
WACO: Baylor University..... Biology, bacteriology, and physiology laboratories, Cornelia M. Smith, Floyd Davidson, Logan Smith. Chemical laboratory, W. T. Gooch, W. R. Stephens.	000ct, 010b, 020b, 030b, 070b, 100ct, 110ct, 120b, 140c, 170c, 240b, 300a, 400b, 500c, 510c, 530c, 810ca, 850c, 890cb, 910b.

## UTAH

SALT LAKE CITY: University of Utah..... Chemical engineering laboratory, George W. Minard. Chemistry laboratory, E. L. Quinn. Civil engineering laboratories, A. Diefendorf. Electrical engineering laboratories, A. L. Taylor. Geology and mineralogy laboratories, H. Schneider. Home economics laboratories, Virginia F. Cutler. Mechanical engineering laboratories, W. J. Cope. Medical science laboratories, L. P. Gebhardt, H. H. Davenport, G. A. Matson, L. Goodman, M. M. Wintrobe, L. T. Samuels, J. G. Toman, C. L. McLennan, John A. Anderson, P. B. Price. Mineral industries laboratories, J. Hugh Hamilton, C. J. Christensen. Mining laboratory, R. S. Lewis. Physics laboratory, Leon B. Linford.	000ab, 010ab, 020ab, 030ab, 040c, 050ab, 090ab, 100ac, 120ac, 140ac, 160ab, 170ac, 300ac, 330ac, 360ac, 370ac, 390ac, 400ahp, 410ps, 500achmps, 510achmps, 530acehmp, 540ach, 550achmp, 560a, 570ac, 590achm, 600acmp, 610acmp, 620-acmp, 630acm, 640acmp, 650acm, 680acm, 690-acm, 700cps, 710cps, 740ps, 750ps, 800cs, 840cs, 850c, 870ac, 880cs, 890cs, 910cbies.
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## VERMONT

BURLINGTON: University of Vermont and State Agricultural College..... Agricultural chemistry laboratory, John E. Little. Botany laboratory, James W. Marvin. Chemical laboratory, Charles E. Braun. Dairy products testing laboratory, Howard B. Ellenberger. Electrical engineering laboratory, Edd R. McKee. Engineering experiment station, Edd R. McKee. Horticultural laboratory, Charles H. Blasberg. Materials testing laboratory, Louis B. Puffer. Mechanical engineering laboratory, Robert G. Chapman. Mineralogical and geological laboratory, C. G. Doll. Pathological laboratory, B. Pearson. Physiological laboratory, F. J. M. Sichel. Physics laboratory, Ralph M. Holmes. Regulatory service laboratory, L. S. Walker. State laboratory of hygiene, C. F. Dalton. Zoology laboratory, Paul A. Moody.	000b, 010bc, 020bc, 100c, 110c, 140apc, 240c, 250-ap, 400p, 410p, 500ch, 510p, 560i, 600ep, 610cp, 620cp, 630cp, 640cp, 650cp, 660ep, 680ep, 690-cp, 700ps, 710pse, 720ps, 730ps, 740ps, 750ps, 760ps, 770ps, 780ps, 790ps, 800c, 810c, 820c, 830c, 840c, 850c, 860c, 870c, 880cb, 890c.
MIDDLEBURY: Middlebury College..... Biological laboratory, Harold B. Hitchcock. Chemical laboratory, P. Conant Voter. Engineering-drafting-meteorology laboratory, Phelps N. Swett. Geological and mineralogical laboratory, Bruno M. Schmidt. Geographical laboratory, J. Rowland Illick. Physical laboratory, Benjamin F. Wissler.	020bepa, 090c, 160ct, 170ct, 200c, 230c, 300cb, 360cb, 420pa, 470ca, 500c, 510c, 520c, 530c, 540c, 550c, 560c, 570c, 590c, 600cm, 610cm, 620cm, 630cm, 640cm, 650cm, 660cm, 680cm, 690cm, 800c, 810c, 820c, 830c, 840c, 850c, 860c, 870c, 880c, 890c.
NORTHFIELD: Norwich University..... Chemical laboratory, P. D. Baker. Civil engineering laboratory, D. L. Snader. Electrical laboratory, F. A. Spencer. Mechanical laboratory, W. D. Emerson. Vermont bureau of industrial research, D. E. Howes.	400cps, 410cps, 420cps, 500cp, 510cps, 530cp, 600aps, 610aps, 690cps, 700is, 710eis, 750is, 790is, 890cs, 990is.
WINOOSKI PARK: Saint Michael's College..... Biological laboratory, T. D. Sullivan.. Chemical laboratory, F. S. Quinlan. Physical laboratory, J. M. Holcomb.	020abc, 040c, 120bc, 140c, 150ac, 160ac, 240b, 570c, 600c, 630c, 640c, 650c, 680c, 800c, 820c, 830c, 840c, 870c, 880bc, 890c, 970pc.

<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COLLEGES—Continued****VIRGINIA**

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>BLACKSBURG:</b>	
Virginia Polytechnic Institute..... Aeronautical laboratory, L. Z. Seltzer. Agricultural chemistry laboratory, H. H. Hill. Agricultural engineering laboratory, C. E. Seitz. Agricultural experiment station, H. N. Young. Animal pathology laboratory, I. D. Wilson. Ceramic laboratory, J. W. Whittmore. Chemical engineering laboratory, F. C. Vilbrandt. Chemistry laboratory, J. W. Watson. Concrete materials laboratory, R. E. L. Gildea. Dairy husbandry laboratory, C. W. Holdaway. Electrical engineering laboratory, W. A. Murray. Engineering experiment station, E. B. Norris. Engineering materials laboratory, L. O'Shaughnessy. Geology and mineralogy laboratory, B. N. Cooper. Highway materials laboratory, R. B. H. Begg. Lubrication laboratory, J. B. Jones. Mechanical engineering laboratory, J. B. Jones. Metallurgy laboratory, H. V. White. Mining laboratory, L. I. Cothern. Physics laboratory, F. L. Robeson. Plant pathology laboratory, S. A. Wingard. Sanitary engineering laboratory, P. H. McGauhey. Soils and crops laboratory, H. L. Dunton. Wood research laboratory, E. Geo. Stern.	000b, 010bc, 020bc, 040cl, 060ac, 100bc, 100c, 120c, 130c, 140cl, 150c, 160c, 170c, 230c, 240c, 250i, 260abc, 280cs, 290cb, 300ac, 310ac, 320ac, 330ac, 340ac, 360ac, 370ac, 390ac, 400acip, 410acip, 420acip, 430aip, 470ac, 500cps, 510acp, 520acp, 530acp, 550a, 570c, 590ac, 600emp, 610emp, 620cmp, 630emp, 640emp, 650cmp, 680emp, 690emp, 700eps, 710eps, 730ps, 760ps, 800c, 810c, 820c, 830c, 840c, 850c, 860c, 870c, 880bes, 890c, 910ps.
<b>CHARLOTTESVILLE:</b>	
University of Virginia..... Anatomical laboratory, H. E. Jordan. Astronomical laboratory, Harold L. Alden. Biochemical laboratory, A. Chanutin. Biology laboratory, I. F. Lewis. Chemical laboratory, A. F. Benton. Chemical engineering laboratory, Otis L. Updike. Civil engineering laboratory, Frank W. Wheeler. Clinical laboratory, W. E. Bray. Electrical engineering laboratory, J. M. Miller, Jr. Embryological and histological laboratory, H. E. Jordan. Mechanical engineering laboratory, C. Henderson. Pathological laboratory, J. R. Cash. Pharmacological laboratory, Chalmers L. Gemmill. Physical laboratory, L. G. Hoxton. Physiological laboratory, S. W. Britten. Public health and bacteriological laboratory, G. M. Lawson.	
<b>LEXINGTON:</b>	
Virginia Military Institute..... Biological laboratory, R. P. Carroll. Chemical laboratory, L. German. Electrical laboratory, J. S. Jamison, Jr. Highway and building materials testing laboratory, R. A. Marr, Jr. Mineralogical laboratory, Edward Steidtmann. Physics laboratory, S. M. Hefflin. Washington and Lee University..... Biology laboratory, K. P. Stevens. Chemistry laboratory, L. J. Dcscha. Geology laboratory, M. H. Stow. Physics and electrical laboratory, R. W. Dickey.	000b, 030b, 050b, 090b, 240b, 400b, 410b, 500b, 510c, 520ac, 550c, 590c, 600c, 630c, 640c, 650c, 680c, 710e, 830c.
<b>RICHMOND:</b>	
University of Richmond..... Biology laboratory, Robert F. Smart. Chemical laboratory, J. Stanton Pierce. Physics laboratory, R. E. Loring.	000ab, 010ab, 020ab, 030ab, 090ab, 810c, 830c.
<b>WILLIAMSBURG:</b>	
College of William and Mary..... Biological laboratory, D. W. Davis. Chemical laboratory, W. G. Guy. Physical laboratory, R. C. Young.	020abc, 880bc, 910s.

<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## WASHINGTON

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
<b>PULLMAN:</b> State College of Washington..... Chemistry laboratory, C. C. Todd. Chemistry laboratory, experiment station, J. D. St. John. Communication laboratory, H. J. Dana. Dairy industry laboratory, H. A. Bendixen. Electrical machinery laboratory, R. D. Sloan. Electrical measurements and standards laboratory, H. F. Lickey. Electron microscopy laboratory, P. A. Anderson. Engineering materials laboratory, B. Fried. Fire assaying laboratory, Dwight Harris. Fuels and lubrication laboratory, F. W. Candee. Home economics laboratory, Velma Phillips. Hydraulics laboratory, C. L. Barker. Industrial research laboratories, E. B. Parker. Metallographic laboratory, G. W. Johnson. Metallurgical laboratory, G. W. Johnson. Mineralogy and petrography laboratory, C. D. Campbell. Ore dressing laboratory, D. L. Masson. Pharmacy laboratory, P. H. Dirstine. Radiographic laboratory, B. Fried. Sanitary engineering laboratory, T. K. Erickson. Seed laboratory, E. G. Schafer. Spectroscopy laboratory, K. E. Fitzsimmons. Steam and gas power laboratory, Wm. A. Pearl. Veterinary bacteriology laboratory, E. C. McCulloch. Veterinary pathology laboratory, D. R. Cordy. X-ray diffraction laboratory, S. T. Stephenson.	000bpa, 010abpa, 020ab, 030bpa, 040ac, 100ac, 110c, 120b, 130b, 140ac, 150ac, 160ac, 170c, 210c, 220ac, 240c, 260c, 300p, 360p, 370p, 410ip, 500ah, 510ah, 520a, 530a, 540a, 550a, 560a, 570a, 590a, 600mp, 620mx, 630mp, 640mp, 650mx, 660mx, 680mx, 690mx, 700hpl, 710ep, 800acp, 810act, 820acp, 830acp, 850c, 870c, 890acp, 910- achimps.
<b>SEATTLE:</b> University of Washington..... Aeronautical, civil, electrical, and mechanical engineering laboratories, E. A. Loew. Chemical and chemical engineering laboratory, H. K. Benson. Fisheries laboratory, William F. Thompson. Forestry laboratory, Gordon D. Marekworth. Mining, metallurgical, and ceramics laboratory, Milnor Roberts. Pharmaceutical, drug laboratory, F. J. Goodrich. Physics laboratory, Clinton L. Utterback.	020c, 030b, 040c, 140c, 150c, 160o, 170c, 240c, 260c, 400ahp, 410b, 420ahp, 430abp, 470ap, 480ca,  500c, 510h, 520h, 530h, 540h, 550h, 570m, 590m, 600m, 620cm, 630cm, 640m, 650m, 660m, 680m, 690m, 820c, 830c, 840c, 850c, 860c, 870c, 880c, 890c, 910s.

## WEST VIRGINIA

<b>MORGANTOWN:</b> West Virginia University..... Agricultural biochemistry laboratory, R. B. Dustman. Agricultural engineering laboratory, A. D. Longhouse. Agronomy and soils laboratory, G. G. Pohlman. Analytical chemistry laboratory, Hubert Hill. Animal nutrition laboratory, A. H. Van Landingham. Animal pathology laboratory, J. H. Rietz. Ceramics laboratory, W. A. Koehler. Chemical engineering laboratory, W. A. Koehler. Coal laboratory, Chas. T. Holland. Dairy laboratory, H. O. Henderson. Department of chemistry laboratories, Friend E. Clark. Electrical engineering laboratory, A. H. Forman. Electrochemistry laboratory, W. A. Koehler. Entomology laboratory, L. M. Peairs. Fuel and oil testing laboratory, J. H. Holden. Horticulture laboratory, R. S. Marsh. Human nutrition laboratory, Ruth D. Noer. Hydraulics and sanitary engineering laboratory, H. W. Speiden. Hydrology laboratory, S. L. Galpin. Mechanical engineering laboratory, H. M. Cather. Mechanics laboratory, G. P. Boomsriter. Metallurgy laboratory, E. P. Bartkus. Organic chemistry laboratory, Chas. L. Lazzell.	000bcp, 020bcp, 410cp, 500cpt, 520cp, 530cp, 600- empx, 610cmpx, 620cmpx, 630cmpx, 640cmpx, 650cmpx, 660cmpx, 680cmpx, 690cmp, 710ep, 730ils, 850ep, 880ep.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

## GEOGRAPHICAL LISTING OF COLLEGES—Continued

## WEST VIRGINIA—Continued

Location and name of laboratory	Commodities and nature of investigations <sup>1</sup>
MORGANTOWN—Continued. West Virginia University—Continued. Physical chemistry laboratory, A. R. Collett. Plant pathology laboratory, J. G. Leach. Poultry laboratory, T. B. Clark. Soil conservation laboratory, R. M. Smith. Unit operations laboratory, H. P. Simons. Wood technology laboratory, H. D. Erickson.	

## WISCONSIN

APPLETON:	Institute of Paper Chemistry (affiliated with Lawrence College)..... Analytical laboratory, B. L. Browning. Cellulose laboratory, E. Heuser. Colloid chemistry laboratory, B. W. Rowland. Fibre microscopy laboratory, John Graff. Microbiology laboratory, J. W. Appling. Organic chemistry laboratory, Ward Pigman. Physics laboratory, J. A. Van den Akker. Pulp and paper testing laboratory, L. V. Forman. Wood testing laboratory, I. H. Isenberg.	280acp, 340c (straw), 360ac, (wool), 400p (logs), 470acp, 490acp, 530acp, 640acp (copper alloys), 680acp (zinc alloys), 710ips, 780ips, 910ips, 950- cp.
LAWRENCE COLLEGE.....	Bacteriology laboratory, Olga Smith. Botany laboratory, W. Rogers. Chemistry laboratory, S. Darling. Geology laboratory, L. R. Thiesmeyer. Physics laboratory, P. Gilbert. Zoology laboratory, W. Van Horn.	030b, 040b, 160cb, 470cp, 490cp, 500cp, 600cp, 630cp, 680cp, 800cp, 820cp, 870cp, 880cp, 910cp.
MADISON:	University of Wisconsin..... Chemical engineering laboratory, O. A. Hoogen. Electrical engineering laboratory, G. F. Tracy. Feeds and fertilizer laboratory, Walter Griem. Hydraulic laboratory, L. F. Van Hagen. Materials testing laboratory, K. F. Wendt. Mechanical engineering laboratory, G. L. Larson. Mining and metallurgy laboratory, G. J. Barker. Soils laboratory, Emil Truog, H. H. Hill. U. S. Forest Products Laboratory, G. M. Hunt.	040b, 090c, 100ac, 110ac, 300a, 320a, 330a, 340a, 360a, 370a, 390a, 400abcehpst, 410abcehpst, 420abcehpst, 470abcehpst, 490abcehpst, 500cp, 510cp, 520es, 530acpmx, 570c, 590acpm, 600- acpm, 610acpm, 620acpm, 640acpm, 650acpm, 680acpm, 700s, 710es, 740sip, 750sip, 760sip, 780s, 800cp, 820cp, 830cp, 850c, 890cp, 910es.
MILWAUKEE:	Marquette University..... Anatomy laboratory, Eben J. Carey. Biochemistry laboratory, Armand J. Quick. Electrical laboratory, John F. H. Douglas. Materials laboratory, O. Neil Olsen. Metallurgical laboratory, John E. Schoen. Pathology laboratory, W. A. D. Anderson. Pharmacology laboratory, Harry Beckman. Physiology laboratory, P. F. Swindle.	000abex, 020c, 040c, 140c, 160c, 170c, 400hip, 410- hip, 510p, 530p, 600pm, 620pm, 630pm, 640pm, 650pm, 680pm, 690pm, 710es, 810ct, 870c, 910is.

## WYOMING

LARAMIE:	University of Wyoming..... Agriculture laboratory, R. E. Pfadt. Assaying laboratory. Botany laboratory, W. G. Solheim. Chemistry laboratory, O. A. Beath. Egg laboratory, Lawrence Morris. Engineering laboratory, R. D. Goodrich. Farm crops laboratory, Wm. Riedl. General chemistry instruction laboratory, P. T. Miller. Geological and mineralogical laboratory, S. H. Knight.	000abct, 010abc, 020abc, 090abc, 100abct, 110- abct, 120abc, 240abcips, 250abcip, 290abc, 360- acips, 500ac, 510acip, 530acp, 540ac, 550ac, 570ac, 590ac, 600cmp, 620cmp, 630cmp, 640c, 650c, 690a, 710s, 830ct, 850abcps.
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<sup>1</sup>See pages 1 and 2 for symbolic references.

**GEOGRAPHICAL LISTING OF COLLEGES—Continued****WYOMING—Continued**

Location and name of laboratory	Commodities and nature of investigations <sup>a</sup>
<p>LARAMIE—Continued.</p> <p>University of Wyoming—Continued.</p> <p>Home economics laboratory, Elizabeth J. McKittrick.</p> <p>Metabolism laboratory, Elizabeth J. McKittrick.</p> <p>National resources institute, H. G. Fisk.</p> <p>Physics laboratory, Carl Cinnamon.</p> <p>Plant pathology laboratory, G. H. Starr.</p> <p>Psychology laboratory, Lillian Portenier.</p> <p>Seeds laboratory, Charles E. Allen.</p> <p>Soils laboratory, T. J. Dunnewald.</p> <p>State chemist, L. E. Walter.</p> <p>Veterinary and animal pathology and bacteriology laboratory, A. M. Lee.</p> <p>Wool and fur laboratory, R. H. Burns.</p> <p>Zoology and parasitology laboratory, John W. Scott.</p>	

<sup>a</sup>See pages 1 and 2 for symbolic references.

