

## CENSUS OF PHARMACEUTICAL RESEARCH, 1927.

BY H. V. ARNY.\*

This is the third Census published by the National Conference on Pharmaceutical Research. The reports of the Census of 1925 and of 1926 which were published in the JOURNAL (May 1925, page 434 and August 1926, page 690) have aroused considerable interest, not the least phase of which was the representative character of the list of research workers in the field of pharmacy. The 1925 Census contained 239 names; the 1926 Census listed 297 persons; while the 1927 Census, as reported on the pages which follow this, presents no less than 401 research workers.

For the first time, the Census represents a really thorough survey of the field. Practically every college of pharmacy where research work is performed, practically every first-class pharmaceutical manufacturing corporation, is now included in the list. While research in pure pharmacology has been intentionally left from the Census, since it is desired to limit the list to the making and dispensing of medicines, the 1927 Census does include the name of one pharmacologist distinguished for his work on the synthesis of new organic medicaments and it also records the work being performed by 10 of his pupils. An interesting addition to the list is the group of 11 persons now studying the problem of drug merchandise distribution under the auspices of the recently created Druggists' Research Bureau.

As reported in 1926, the list changes year by year. Thus somewhat over 100 names that were listed in the Census of 1926 do not appear in the present list. Of these we record with sorrow the removal of five by death; among them Dr. F. B. Power, the foremost research worker in American Pharmacy. Most of the others now omitted were former students in our colleges or employees of our manufacturing plants who have transferred their activities into non-pharmaceutical fields.

The 401 research workers recorded on the pages which follow may be classified as follows:

Hospital pharmacists.....	5
Retail pharmacists.....	12
Wholesale druggists.....	5
Pharmacists engaged in medical school work.....	4
Governmental scientists, doing pharmaceutical research.....	17
Practicing chemists.....	8
Non-pharmaceutical teachers and their students (chemists and pharmacologists).....	31
Manufacturing pharmacists.....	138
Pharmaceutical teachers and their students.....	181
	Total 401

The names and addresses of these persons as well as the subject of their research are given in the tabulation which follows:

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\* Chairman, National Conference on Pharmaceutical Research.

## CENSUS OF PHARMACEUTICAL RESEARCH.

Index numbers intended to indicate coöperative work.

<i>Index No.</i>	<i>Name.</i>	<i>Laboratory.</i>	<i>Town.</i>	<i>Subject.</i>	<i>Remarks.</i>
1	Abreu, Miss A.	School Pharmacy, Univ. Philippines	Manila, P. I.	Chemistry of the seed of Lansium domesticum	See No. 370
2	Adams, Roger	Chemistry Bldg., Univ. Ill.	Urbana, Ill.	Chaulmoogric acid de- rivatives. Resorcinol antiseptics	
3	Adams, J. E.	College Pharmacy, Columbia Univ.	New York, N. Y.	Fat content of milk powders	See No. 12
4	Amarel, A.	H. K. Mulford Co.	Glenolden, Pa.	Snake venoms and anti- venins	See No. 288
5	Amrhein, F. J.	Mass. College Phar- macy	Boston, Mass.	Colorimetric assay of hydrocyanic acid	See Nos. 103, 189 and 226
6	Anderson, J. F.	E. R. Squibb & Sons	New Brunswick, N. J.	Diabetic medicaments. Erysipelas and measles anti-toxins	See Nos. 24, 90, 116, 148, 161, 201, 215, 237 and 247
7	Andrew, R. H.	Armour & Co.	Chicago, Ill.	Isoelectric precipitation of pepsin	See No. 102
8	Army, H. V.	College Pharmacy, Columbia Univ.	New York, N. Y.	Colorimetric tests with standardized colored fluids. Syrup of fer- rous iodide	See No. 176
9	Arzoomanian, S.	E. R. Squibb & Sons	Brooklyn, N. Y.	Plasticity studies	See No. 253
10	Bacon, F. J.	College Pharmacy, Univ. Florida	Gainesville, Fla.	Digitalis. Medicinal plants of Florida	
11	Bagabaldo, Miss J.	School Pharmacy, Univ. Philippines	Manila, P. I.	Chemistry of the rind of Lansium domestica	See No. 370
12	Ballard, C. W.	College Pharmacy, Columbia Univ.	New York, N. Y.	Psyllium seed	See Nos. 3, 227 and 280
13	Balliger, Miss K.	Dept. Chemistry, Univ. Illinois	Urbana, Ill.	Pressor anesthetics	See No. 230
14	Barbella, N. G.	Bureau of Chemistry	Washington, D. C.	General pharmacology	See No. 248
15	Barone, T.	Eli Lilly & Co.	Indianapolis, Ind.	Excipients for compressed tablets	See No. 21
16	Beal, G. D.	Mellon Institute	Pittsburgh, Pa.	General chemical research	
17	Bebie, Jules	Monsanto Chem. Works	St. Louis, Mo.	U. S. P. revision problems. Synthetic pharmaceu- ticals	
18	Becker, I. A.	Michael Reese Hos- pital	Chicago, Ill.	Recipe Book problems Effect of light on chem- icals	
19	Benedict, L. S.	W. S. Merrell Co.	Cincinnati, Ohio	Sodium ricinoleate	See No. 45
20	Beringer, G. M.	Retail pharmacy	Camden, N. J.	U. S. P. and N. P. revision problems	
21	Bibbins, F. E.	Eli Lilly & Co.	Indianapolis, Ind.	General pharmaceutical research	See Nos. 15, 245 and 347
22	Bienfang, R. D.	College Pharmacy, Univ. Wisconsin	Madison, Wis.	Polygala Senega	See No. 293
23	Bieter, R. N.	College Medicine, Univ. Minnesota	Minneapolis, Minn.	Excretion of phenolsul- phonphthalein and other dyes	See No. 158
24	Black, Archie	E. R. Squibb & Sons	New Brunswick, N. J.	Vitamin assay methods	See No. 6
25	Blades, M. W.	College Pharmacy, Univ. N. C.	Chapel Hill, N. C.	Action of hexylresorcinol on certain enzymes	See No. 202
26	Blicke, F. F.	College Pharmacy, Univ. Michigan	Ann Arbor, Mich.	Synthetic medicinals	See Nos. 281, 282, 305, 334 and 387
27	Bliss, A. R.	Medical College, Univ. Tennessee	Memphis, Tenn.	Pharmacological and chemical studies	See Nos. 41 and 378
28	Boardman, Beda	College Pharmacy, Univ. Wisconsin	Madison, Wis.	Wax	See No. 200
29	Bobb, R.	College Pharmacy, Univ. Wisconsin	Madison, Wis.	Pigments of Sorbus aucu- paria and Physalis fran- chetti	See No. 380

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31	Boughton, L. L.	School Pharmacy, Univ. Kansas	Lawrence, Kan.	Soaps	See No. 152
32	Bowers, H. R.	College Pharmacy, Univ. Michigan	Ann Arbor, Mich.	Coöperative drug assay work	
33	Bowser, T.	E. L. Patch Co.	Boston, Mass.	Vitamin content of cod-liver oil	See No. 163
34	Brackman, C. G.	College Pharmacy, Univ. Pittsburgh	Pittsburgh, Pa.	Stains for cellulose and lignocellulose	See No. 73
35	Bradford, Caty	College Pharmacy, Univ. Washington	Seattle, Wash.	Syrups of calcium iodide and ferrous iodide	See No. 204
36	Bradley, T. J.	Mass. College Pharmacy	Boston, Mass.	U. S. P. revision problems	
37	Braubach, C.	College Pharmacy, Univ. N. C.	Chapel Hill, N. C.	Refining menhaden fish oil	See No. 202
38	Braun, H. A.	College Pharmacy, Univ. Wisconsin	Madison, Wis.	Non-volatile constituents of peppermint	See No. 200
39	Brimston, Marion	College Pharmacy, Univ. Washington	Seattle, Wash.	Assay methods for bis-muth compounds	See No. 177
40	Briod, A. E.	E. R. Squibb & Sons	Brooklyn, N. Y.	Vitamin-bearing oils	See No. 253
41	Brown, M. F.	Medical College, Univ. Tennessee	Memphis, Tenn.	Phytolacca. Kava	See No. 27
42	Bugbee, E. P.	Parke, Davis & Co.	Detroit, Mich.	Biological standardization of glandular products	
43	Bullock, J. A.	College Pharmacy, Univ. N. C.	Chapel Hill, N. C.	Iodine ointment made from hydrogenated coconut oil	See No. 202
44	Burlage, H. N.	College Pharmacy, Univ. Washington	Seattle, Wash.	Asarum caudatum	See No. 222
45	Bye, Mortimer	W. S. Merrell Co.	Cincinnati, Ohio	Biochemical research	See Nos. 19, 50, 77, 277, 322 and 392
46	Cain, Russell	College Pharmacy, Univ. Washington	Seattle, Wash.	Physical-chemical study of certain evergreen plants	See No. 177
47	Campbell, E. D.	Eli Lilly & Co.	Indianapolis, Ind.	Liver extracts	See No. 290
48	Canis, O. F. A.	College Pharmacy, Fordham Univ.	New York, N. Y.	Aromatic waters of U. S. P. X	See No. 79
49	Cannon, Laura	Dept. of Chemistry, Yale Univ.	New Haven, Conn.	Local anesthetics	See No. 155
50	Carmichael, E. B.	W. S. Merrell Co.	Cincinnati, Ohio	Bacteriologic and biochemical research	See No. 45
51	Carter, E. B.	Swan-Myers Co.	Indianapolis, Ind.	Biological research	See No. 348
52	Caspe, Sol.	H. A. Metz & Co.	New York, N. Y.	Active principles of cod-liver oil	See No. 84
53	Catalino, A.	College Pharmacy, Univ. Pittsburgh	Pittsburgh, Pa.	Histology of galinsoga	See No. 73
54	Cawley, Ellen	Phila. Coll. Pharm.	Philadelphia, Pa.	Digitalis	See No. 374
55	Chamberlin, N.	College Pharmacy, Western Reserve Univ.	Cleveland, Ohio	Coöperative drug assay work	See No. 384
56	Chao, S. S.	College Pharmacy, Univ. Wisconsin	Madison, Wis.	Chinese cassia	See No. 200
57	Chappell, F. C.	E. R. Squibb & Sons	Brooklyn, N. Y.	Vitamin-bearing oils	See No. 253
58	Chen, S. Y.	College Pharmacy, Univ. Wisconsin	Madison, Wis.	Star-anise and poisonous star anise	See No. 200
59	Cheplin, H. A.	H. K. Mulford Co.	Glenolden, Pa.	Acidophyllus bacillus	See No. 288
60	Christensen, B. V.	College Pharmacy, Univ. Wisconsin	Madison, Wis.	Chalk and other forms of calcium carbonate	See No. 200
61	Clark, A. H.	College Pharmacy, Univ. Illinois	Chicago, Ill.	Assay of benzoates and salicylates Alkaloids of Ceanothus Americanus	
62	Clay, C. L.	Chem. Laboratory	New Orleans, La.	Coöperative drug assay work	See No. 384
63	Clevenger, J. E.	Bureau of Chemistry	Washington, D. C.	Analytic drug chemistry	See No. 249

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65	Cooper, Zada M.	College Pharmacy, Univ. Iowa	Iowa City, Iowa	Volatile oil assays of U. S. P. X	
66	Corbitt, H. B.	H. A. Metz & Co.	New York, N. Y.	Sulphur compounds as antidotes to metallic poisons	
67	Corcoran, J. J.	College Pharmacy, Fordham Univ.	New York, N. Y.	Pharmaceuticals of U. S. P. X	See No. 79
68	Cowles, Russell	Digestive Ferments Co.	Detroit, Mich.	Ovarian hormones	See No. 130
69	Cox, C. L.	College Pharmacy, Valparaiso Univ.	Valparaiso, Ind.	Pharmaceuticals of N. F. V	See No. 312
70	Crandall, J. V.	College Pharmacy, Detroit Inst. Tech- nology	Detroit, Mich.	U. S. P. color standards and nomenclature	See No. 346
71	Crockett, W. G.	Medical College of Virginia	Richmond, Va.	Rate of decomposition of ethyl nitrite in copaiba mixtures	
72	Culley, John	Retail pharmacy	Ogden, Utah	U. S. P. revision problems	
73	Darbaker, L. K.	College Pharmacy, Univ. Pittsburgh	Pittsburgh, Pa.	Bacteriologic problems. Histologic pharmacog- nomy	See Nos. 34, 53, 137, 178, 287, 321, 341, 353 and 355
74	Daugherty, S. C.	College Pharmacy, Univ. Pittsburgh	Pittsburgh, Pa.	Histology of the stem of galinsoga	See No. 197
75	Davis, H. L.	College Pharmacy, Univ. Illinois	Chicago, Ill.	Bromination of alkyl aryl ketones	
76	Davis, Miss M.	New Jersey College Pharmacy	Newark, N. J.	Vitamin studies	See No. 294
77	Davison, F. R.	W. S. Merrell Co.	Cincinnati, Ohio	Bio-chemistry Fibrogen	See No. 45
78	Decherd, G. N.	Medical College, Univ. Minnesota	Minneapolis, Minn.	Sulphur compounds of quinine	See No. 158
79	Diner, Jacob	College Pharmacy, Fordham Univ.	New York, N. Y.	U. S. P. revision problems	See Nos. 48, 67 and 274
80	Dohme, A. R. I.	Sharpe & Dohme	Baltimore, Md.	U. S. P. revision problems	See No. 285
81	Dorjahn, J. A.	College Pharmacy, Univ. Illinois	Chicago, Ill.	Effect of heat on traga- cath mucilages	
82	Douglass, A. B.	School Pharmacy, Univ. Kansas	Lawrence, Kan.	Extract of stramonium	See No. 152
83	Dox, A. W.	Parke, Davis & Co.	Detroit, Mich.	Synthetic hypnotics	
84	Dubin, H. E.	H. A. Metz & Co.	New York, N. Y.	Active principles of cod- liver oil	See No. 52
85	DuMez, A. G.	College Pharmacy, Univ. Maryland	Baltimore, Md.	U. S. P. revision problems	
86	Dunn, M. S.	Phila. College Phar- macy	Philadelphia, Pa.	Drug engineering Digitalis	See No. 374
87	Dunning, F.	Hynson, Westcott & Dunning	Baltimore, Md.	Chemo-therapy of or- ganic antimonials	See No. 88
88	Dunning, H. A. B.	Hynson, Westcott & Dunning	Baltimore, Md.	Synthetic organic medi- caments Endocrines	See Nos. 87, 142 224, 343 and 366
89	Eaton, E. O.	Chemical Laboratory	San Francisco, Cal.	Coöperative drug assay work	See No. 384
90	Eberlein, C. W.	E. R. Squibb & Sons	New Brunswick, N. J.	Concentration of anti- toxins and antisera	See No. 6
91	Eckler, C. R.	Eli Lilly & Co.	Indianapolis, Ind.	Vitamin standardization	See No. 290
92	Eldred, F. R.	Reed & Carnrick	Jersey City, N. J.	Endocrine products	
93	Elgin, W. F.	H. K. Mulford Co.	Glenolden, Pa.	Neurovaccine and der- movaccine	See No. 288
94	Emery, W. O.	Bureau of Chemistry	Washington, D. C.	Halogenated antipyrenes. Assays of organic mix- tures	
95	Emmert, H. C.	College Pharmacy, Detroit Institute	Detroit, Mich.	U. S. P. color standards and nomenclature	See No. 346
96	Enright, J. J.	E. R. Squibb & Sons	Brooklyn, N. Y.	Chemistry of tooth enamel	See No. 253

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98	Evans, R. N.	Dept. of Chemistry, Yale Univ.	New Haven, Conn.	Antiseptics	See No. 155
99	Éwe, G. E.	Tailby-Nason Co.	Boston, Mass.	Manufacture and analysis of pharmaceuticals	
100	Farwell, O. A.	Parke, Davis & Co.	Detroit, Mich.	Pharmacognosy and systematic botany	
101	Faser, H. M.	School Pharmacy, Univ. Mississippi	University, Miss.	Ointments and solutions of N. F. V	See No. 180
102	Fenger, F.	Armour & Co.	Chicago, Ill.	Isoelectric precipitation of pepsin	See No. 7
103	Fenwick, H. B.	Mass. College Pharmacy	Boston, Mass.	Study of hospital formularies	See No. 5
104	Finneran, J. F.	Retail pharmacy	Boston, Mass.	Research in the field of distribution	See No. 251
105	Fischelis, R. P.	Consulting pharmacist	Trenton, N. J.	Manufacture and standardization of digitalis preparations	
106	Fischer, E. B.	College Pharmacy, Univ. Minnesota	Minneapolis, Minn.	Educational statistics	
107	Fischer, L.	College Pharmacy, Univ. Washington	Seattle, Wash.	Constituents of aspidium Drug plant cultivation	
108	Fleming, C. E.	College Pharmacy, Univ. Pittsburgh	Pittsburgh, Pa.	Polypodium occidentale	See No. 127
109	Fonda, L. D.	College Pharmacy, Univ. Florida	Gainesville, Fla.	Histology of the stem of galinsoga	See No. 197
110	Foote, P. A.	College Pharmacy, Univ. Wis.	Madison, Wis.	Mints of Florida yielding menthol	See No. 213
111	Freedman, Louis	H. A. Metz & Co.	New York, N. Y.	Volatile oil of Kaempferia galanga Derivatives of cinnamic acid	See No. 200
112	Garcia, Miss S.	School Pharmacy, Univ. Philippines	Manila, P. I.	Arsphenamine Neorsphenamine Epinephrin derivatives Local anesthetics	
113	Gardner, J. H.	Dept. of Chemistry, Univ. W. Va.	Morgantown, W. Va.	Chemistry of the rind of Lansium domesticum	See No. 370
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116	Gerlough, T. D.	E. R. Squibb & Sons	New Brunswick, N. J.	Color terminology and colorimetric methods of U. S. P. X and N. F. V	
117	Germuth, F. G.	Baltimore Bureau of Standards	Baltimore, Md.	Insulin	See No. 6
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120	Gilman, Henry	Dept. of Chemistry, Iowa State Coll.	Ames, Iowa	Catalytic dehydration and hydrogenation of organic compounds	See No. 213
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123	Glover, C. C.	College Pharmacy, Univ. Mich.	Ann Arbor, Mich.	Antiseptics	
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128	Gordon, S. M.	College Pharmacy, Univ. Wis.	Madison, Wis.	Non-volatile constituents of <i>Mentha citrata</i>	See No. 200
129	Goulden, H.	E. R. Squibb & Sons	Brooklyn, N. Y.	Anesthetic ether	See No. 253
130	Graber, H. T.	Digestive Ferments Co.	Detroit, Mich.	Propylene and butylene Active principles of duct-less glands and their standardization	See Nos. 68 and 338
131	Graham, Katharine	Dept. of Chemistry, Univ. Oklahoma	Norman, Okla.	Sulphonation of aliphatic hydrocarbons	
132	Gray, William	Presbyterian Hos-pital	Chicago, Ill.	Recipe Book problems	
133	Greenwood, R. L.	Sharpe & Dohme	Baltimore, Md.	Effect of changes in $pH$ on the activity of local anesthetics	
134	Griffith, Ivor	Stetson Hospital	Philadelphia, Pa.	Recipe Book problems Mercury determinations	See Nos. 135 and 283
135	Griffith, Morris	Stetson Hospital	Philadelphia, Pa.	Recipe Book problems	See No. 134
136	Grill, F.	School Pharmacy, North Pacific Col-lege	Portland, Ore.	Spectrum of chlorophyll	See No. 313
137	Hagmaier, Lewis	College Pharmacy, Univ. Pittsburgh	Pittsburgh, Pa.	Extraction of inulin	See No. 73
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141	Hansen, N. A.	Abbott Laboratories	North Chicago, Ill.	Local anesthetics	See No. 377
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143	Hargreaves, C. C.	Eli Lilly & Co.	Indianapolis, Ind.	Pharmacological stand-ardization	See No. 290
144	Harris, C. R.	College Pharmacy, Univ. N. C.	Chapel Hill, N. C.	Menthol from oil of <i>Men-tha arvensis</i> Conversion of menthone into menthol in mint oils	See No. 202
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146	Harrison, C. W.	U. S. Food & Drug Lab.	Baltimore, Md.	Terpin Hydrate	
147	Hart, Fanchon	College Pharmacy, Columbia Univ.	New York, N. Y.	Official and unofficial mannas	
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377	Volweiler, E. H.	Abbott Laboratories	Chicago, Ill.	Oil of chenopodium Ipecac alkaloids	See No. 27
378	Waddell, Pearl	Medical College, Univ. Tenn.	Memphis, Tenn.	Coöperative drug assay work	See No. 384
379	Wahl, J. B.	College Pharmacy, Univ. Iowa	Iowa City, Iowa	Phytochemical problems	See Nos. 29, 270, 314 and 364
380	Wakeman, Nellie	School Pharmacy, Univ. Wisconsin	Madison, Wis.	Gland products	See No. 290
381	Walden, G. B.	Eli Lilly & Co.	Indianapolis, Ind.	Mercurials	See No. 290
382	Waldo, J. H.	Eli Lilly & Co.	Indianapolis, Ind.	Analytic drug chemistry	See No. 249
383	Wales, H.	Bureau of Chemistry	Washington, D. C.	Coöperative drug assay work	See Nos. 55, 62, 89, 164, 194, 311, 328, 361 and 379
384	Warren, L. E.	Bureau of Chemistry	Washington, D. C.	Analytic drug chemistry	See No. 249
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386	Watson, D.	College Pharmacy, Purdue Univ.	Lafayette, Ind.	Halogenated phenolphthaleins	See No. 26
387	Weinkauff, O. J.	College Pharmacy, Univ. Michigan	Ann Arbor, Mich.	Pharmacology of potassium iodide	See No. 158
388	Wilkinson, G.	College Medicine, Univ. Minnesota	Minneapolis, Minn.	Drug assays and their variations Recipe Book problems	
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397	Wurdack, J. H.	College Pharmacy, Univ. Pittsburgh	Pittsburgh, Pa.	Pharmacology of iodine and belladonna ointments	
398	Youngken, H. W.	Mass. College Pharmacy	Boston, Mass.	Decomposition factors of protein and iron	See No. 203
399	Zeigler, W. H.	Pharm. Department, Medical College of South Carolina	Charleston, S. C.	Constituents of <i>Verbena hastata</i>	See No. 182
400	Zindler, F. L.	College of City of Detroit	Detroit, Mich.		
401	Zufall, C. J.	College Pharmacy, Purdue Univ.	Lafayette, Ind.		