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# Publications of B. W. Hammer

## 1909-1935

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- HOFFMAN, C., AND B. W. HAMMER**  
1909. Two new methods of growing azotobacter. Centbl. f. Bact. II Abt., 24: 181-183.
- HASTINGS, E. G., B. W. HAMMER AND C. HOFFMAN**  
1909. Studies on the bacterial and leucocyte content of milk. Wis. Agr. Exp. Sta., Res. Bul. 6.
- RAVENEL, M. P., E. G. HASTINGS AND B. W. HAMMER**  
1910. The bacterial flora of milk held at low temperatures. Jour. of Inf. Dis., 7: 38-46.
- HOFFMAN, C., AND B. W. HAMMER**  
1910. Some factors concerned in the fixation of nitrogen by azotobacter. Wis. Agr. Exp. Sta., Res. Bul. 12.
- RAVENEL, M. P., AND B. W. HAMMER**  
1911. Rabies in Wisconsin. Wis. Med. Jour., 9: 565-571.
- RAVENEL, M. P., AND B. W. HAMMER**  
1911. Passage of bacteria through the intestinal wall. Jour. of Med. Res., 19: 513-516.
- HAMMER, B. W.**  
1911. A note on the vacuum desiccation of bacteria. Jour. of Med. Res., 19: 527-530.
- HAMMER, B. W.**  
1912. Bacteria and ice cream. Iowa Agr. Exp. Sta., Bul. 134.
- MORTENSEN, M., AND B. W. HAMMER**  
1913. Lacto; a frozen dairy product. Iowa Agr. Exp. Sta., Bul. 140.
- HAMMER, B. W., AND A. R. JOHNSON**  
1913. The specific heat of milk and milk derivatives. Iowa Agr. Exp. Sta., Res. Bul. 14.
- HAMMER, B. W.**  
1914. A bacteriological study of blue milk. Iowa Agr. Exp. Sta., Res. Bul. 15.
- HAMMER, B. W., AND A. J. HAUSER**  
1914. The pasteurization of milk in the final package. Iowa Agr. Exp. Sta., Bul. 154.

- HAMMER, B. W.  
1914. The pasteurization of cream for buttermaking. Iowa Agr. Exp. Sta., Bul. 156.
- HAMMER, B. W.  
1915. Bacteriological studies on the coagulation of evaporated milk. Iowa Agr. Exp. Sta., Res. Bul. 19.
- HAMMER, B. W.  
1915. Bacteriological studies of two yellow milk organisms. Iowa Agr. Exp. Sta., Res. Bul. 20.
- BUCHANAN, R. E., AND B. W. HAMMER  
1915. Slimy and ropy milk. Iowa Agr. Exp. Sta., Res. Bul. 22.
- HAMMER, B. W., AND A. J. HAUSER  
1916. Studies on the market milk of Iowa. Iowa Agr. Exp. Sta., Bul. 164.
- HAMMER, B. W.  
1916. Studies on the formation of gas in milk. Iowa Agr. Exp. Sta., Res. Bul. 27.
- HAMMER, B. W.  
1916. Studies on the clarification of milk. Iowa Agr. Exp. Sta., Res. Bul. 28.
- HAMMER, B. W., AND R. H. HIX  
1916. Studies on the numbers of bacteria in milk showing various changes. Iowa Agr. Exp. Sta., Res. Bul. 29.
- HAMMER, B. W.  
1916. Studies on the creaming ability of milk. Iowa Agr. Exp. Sta., Res. Bul. 31.
- HAMMER, B. W.  
1917. Fishiness in evaporated milk. Iowa Agr. Exp. Sta., Res. Bul. 38.
- HAMMER, B. W., AND D. E. BAILEY  
1917. Rapid volumetric method for approximate estimation of chlorine in milk. Iowa Agr. Exp. Sta., Res. Bul. 41.
- HAMMER, B. W., AND E. F. GOSS  
1917. Bacteria in ice cream II. Iowa Agr. Exp. Sta., Bul. 174.
- HAMMER, B. W., AND A. J. HAUSER  
1918. Studies on the uniformity of heating in the final package method of pasteurization. Jour. of Dairy Sci., 1: 462-474.
- HAMMER, B. W., AND A. J. HAUSER  
1918. Fermented milk. Iowa Agr. Exp. Sta., Cir. 54.
- HAMMER, B. W., AND A. J. HAUSER  
1918. Studies on the clarification of milk II. Iowa Agr. Exp. Sta., Res. Bul. 47.
- HAMMER, B. W.  
1919. Studies on abnormal evaporated milk. Iowa Agr. Exp. Sta., Res. Bul. 52.
- HAMMER, B. W.  
1919. Studies on formation of gas in sweetened condensed milk. Iowa Agr. Exp. Sta., Res. Bul. 54.
- HAMMER, B. W., AND D. E. BAILEY  
1919. The volatile acid production of starters and organisms isolated from them. Iowa Agr. Exp. Sta., Res. Bul. 55.
- HAMMER, B. W., AND L. R. SANDERS  
1919. A bacteriological study of the method of pasteurizing and homogenizing the ice cream mix. Iowa Agr. Exp. Sta., Bul. 186.
- HAMMER, B. W.  
1919. Bacteriological results obtained in practice with vat pasteurization and with one of the final package methods. Iowa Agr. Exp. Sta., Bul. 190.
- HAMMER, B. W., AND W. A. CORDES  
1920. An unusual outbreak of ropy milk. Jour. of Dairy Sci., 3: 291-299.

- HAMMER, B. W., AND W. A. CORDES**  
1920. A study of lactose-fermenting yeasts in "yeasty" cream. Iowa Agr. Exp. Sta., Res. Bul. 61.
- HAMMER, B. W.**  
1920. Volatile acid production of *S. lacticus* and the organisms associated with it in starters. Iowa Agr. Exp. Sta., Res. Bul. 63.
- HAMMER, B. W., AND W. A. CORDES**  
1920. A study of brown glass milk bottles with reference to their use in preventing abnormal flavors. Iowa Agr. Exp. Sta., Res. Bul. 64.
- HAMMER, B. W.**  
1920. The type of lactic acid produced by starters and by organisms isolated from them. Iowa Agr. Exp. Sta., Res. Bul. 65.
- HAMMER, B. W.**  
1921. The bacteriology of ice cream. Univ. of Wis. Studies in Sci., 2: 182-199.
- PLAISANCE, G. W., AND B. W. HAMMER**  
1921. The mannitol-producing organisms in silage. Jour. of Bact., 6: 431-444.
- HAMMER, B. W.**  
1921. New angles to the startermaker's problems. Jour. of Dairy Sci., 4: 277-285.
- CORDES, W. A., AND B. W. HAMMER**  
1921. The relation between the volatile and total acidity in starters and in cultures of *S. lacticus*. Iowa Agr. Exp. Sta., Res. Bul. 66.
- HAMMER, B. W.**  
1921. Sources of the flavor in butter. Iowa Agr. Exp. Sta., Res. Bul. 67.
- HAMMER, B. W., AND W. A. CORDES**  
1921. Burnt or caramel flavor of dairy products. Iowa Agr. Exp. Sta., Res. Bul. 68.
- HAMMER, B. W.**  
1923. The action of the organisms present in the starters used in butter making. World's Dairy Cong. Proc., 2: 985.
- HAMMER, B. W.**  
1923. Studies on ropiness in cultures of *Streptococcus lactis*. Iowa Agr. Exp. Sta., Res. Bul. 74.
- HAMMER, B. W., AND F. F. SHERWOOD**  
1923. The volatile acids produced by starters and by organisms isolated from them. Iowa Agr. Exp. Sta., Res. Bul. 80.
- HAMMER, B. W., AND M. P. BAKER**  
1923. Studies on *Streptococcus paracitrovorus* group. Iowa Agr. Exp. Sta., Res. Bul. 81.
- HAMMER, B. W.**  
1924. Associative action as a cause of yellow color in yeast colonies. Jour. of Dairy Sci., 7: 163-168.
- HAMMER, B. W.**  
1924. Starter studies. Dairy Record, Dec. 31, 1924: 18-21 and Jan. 7, 1925: 10, 26-27.
- BAKER, M. P., AND B. W. HAMMER**  
1925. The development of metallic flavor in buttermilk. Iowa Acad. of Sci. Proc., 32: 55-58.
- TOENS, P., AND B. W. HAMMER**  
1925. Studies on starters. Part I. Influence on starters of air supply, temperature of incubation, and rate of ripening. Iowa Agr. Exp. Sta., Res. Bul. 85.
- SHERWOOD, F. F., AND B. W. HAMMER**  
1925. Part II. Acetone in distillates from starters and from milk. Iowa Agr. Exp. Sta., Res. Bul. 85.
- HAMMER, B. W.**  
1926. Studies on yeasts in dairy products. I. Relationships of yeasts to dairy products. Jour. of Dairy Sci., 9: 507-511.

- SHERWOOD, F. F., AND B. W. HAMMER**  
 1926. Citric acid content of milk. Iowa Agr. Exp. Sta., Res. Bul. 90.
- BAKER, M. P., AND B. W. HAMMER**  
 1926. Influence of the milk on the starter made from it. Iowa Agr. Exp. Sta., Res. Bul. 92.
- HAMMER, B. W., AND M. P. BAKER**  
 1926. Classification of the *Streptococcus lactis* group. Iowa Agr. Exp. Sta., Res. Bul. 99.
- HYDE, L. S., AND B. W. HAMMER**  
 1927. Isomeric form of lactic acid produced by *Lactobacillus acidophilus*. Iowa State College Jour. of Sci., 1:419-428.
- HAMMER, B. W.**  
 1927. Gas in evaporated milk due to a *Streptococcus*. Iowa State College Jour. of Sci., 2:1-7.
- CORDES, W. A., AND B. W. HAMMER**  
 1927. Studies on yeasts in dairy products. II. General grouping of the more numerous types. Jour. of Dairy Sci., 10:50-52.
- CORDES, W. A., AND B. W. HAMMER**  
 1927. Studies on yeasts in dairy products. III. The pink yeasts common in milk and cream. Jour. of Dairy Sci., 10:210-218.
- HAMMER, B. W.**  
 1928. Dairy bacteriology. Wiley, N. Y. 473 pp.
- HUSSONG, R. V., AND B. W. HAMMER**  
 1928. A thermophile coagulating milk under practical conditions. Jour. of Bact., 15:179-188.
- HAMMER, B. W., AND G. M. TROUT**  
 1928. A study of the yellow cocci which survive pasteurization. Jour. of Dairy Sci., 11:18-23.
- SARKARIA, R. S., AND B. W. HAMMER**  
 1928. Influence of temperature on the changes produced in milk by certain bacteria. Jour. of Dairy Sci., 11:89-101.
- PATIL, V. H., AND B. W. HAMMER**  
 1928. The keeping qualities of ghee. Jour. of Dairy Sci., 11:143-154.
- HAMMER, B. W., AND M. P. BAKER**  
 1928. Studies on starters. Iowa Agr. Exp. Sta., Res. Bul. 106.
- HUSSONG, R. V., AND B. W. HAMMER**  
 1930. Anaerobic bacteria in dairy products. I. Numbers of spores of anaerobic bacteria in milk and cream. Jour. of Bact., 19:89-94.
- HUSSONG, R. V., AND B. W. HAMMER**  
 1930. Anaerobic bacteria in dairy products. II. Relationship of anaerobic bacteria to certain abnormal fermentations. Jour. of Bact., 19:95-99.
- HAMMER, B. W.**  
 1930. Variations in *Streptococcus lactis*. Jour. of Dairy Sci., 13:64-68.
- HAMMER, B. W.**  
 1930. Observations on ropiness in butter cultures. Jour. of Dairy Sci., 13:69-77.
- HAMMER, B. W., AND V. H. PATIL**  
 1930. Proteolysis by *Streptococcus lactis* with special reference to butter cultures and butter. Iowa Agr. Exp. Sta., Res. Bul. 123.
- HAMMER, B. W., AND R. V. HUSSONG**  
 1930. Bacteriology of butter. I. Influence of the distribution of the non-fatty constituents on the changes in bacterial content during holding. Iowa Agr. Exp. Sta., Res. Bul. 134.
- HAMMER, B. W.**  
 1931. Some of the causes for unsatisfactory results with cultured buttermilk

especially from the standpoint of flavor. Inter. Assoc. of Milk Dealers, Lab. Sec. Proc., 24: 21-30.

HUSSONG, R. V., AND B. W. HAMMER

1931. The isomeric forms of lactic acid produced in milk by some of the anaerobes. Iowa State College Jour. of Sci., 5: 167-170.

HUSSONG, R. V., AND B. W. HAMMER

1931. Observations on *Bacillus calidolactis*. Iowa State College Jour. of Sci., 6: 89-93.

HAMMER, B. W., AND R. V. HUSSONG

1931. Observations on the heat resistance of someropy milk organisms. Jour. of Dairy Sci., 14: 27-40.

HARRIMAN, L. A., AND B. W. HAMMER

1931. Variations in the coagulation and proteolysis of milk by *Streptococcus lactis*. Jour. of Dairy Sci., 14: 40-50.

FABRICIUS, N. E., AND B. W. HAMMER

1931. Observations on the counting of bacteria in ice cream by the plate method. Iowa Agr. Exp. Sta., Bul. 285.

HUSSONG, R. V., AND B. W. HAMMER

1931. The pasteurization efficiencies secured with milk from individual farms. Iowa Agr. Exp. Sta., Bul. 286.

HAMMER, B. W., AND J. A. NELSON

1931. Bacteriology of butter. II. A method for the microscopic examination of butter. Iowa Agr. Exp. Sta., Res. Bul. 137.

HAMMER, B. W., AND H. C. OLSON

1931. Bacteriology of butter. III. A method for studying the contamination from churning. Iowa Agr. Exp. Sta., Res. Bul. 141.

DERBY, H. A., AND B. W. HAMMER

1931. Bacteriology of butter. IV. Bacteriological studies on surface taint butter. Iowa Agr. Exp. Sta., Res. Bul. 145.

FARMER, R. S., AND B. W. HAMMER

1931. Studies on the development of butter cultures from mixtures of organisms. Iowa Agr. Exp. Sta., Res. Bul. 146.

SARLES, W. B., AND B. W. HAMMER

1932. Observations on *Bacillus coagulans*. Jour. of Bact., 23: 301-314.

HAMMER, B. W., AND M. W. YALE

1932. Development of the *Escherichia-Aerobacter* group of bacteria in butter. Jour. of Dairy Sci., 15: 199-208.

HAMMER, B. W., AND R. V. HUSSONG

1932. Action of aerobic spore-forming organism on evaporated milk. Jour. of Dairy Sci., 15: 220-229.

COLLINS, M. A., AND B. W. HAMMER

1933. Migration of bacteria through butter. Iowa State College Jour. of Sci., 7: 453-460.

HAMMER, B. W., AND H. C. OLSON

1933. Studies on a color defect in butter. Iowa State College Jour. of Sci., 7: 487-491.

SARLES, W. B., AND B. W. HAMMER

1933. Species of *Escherichia-Aerobacter* organisms responsible for some defects in dairy products. Jour. of Bact., 25: 461-467.

MICHAELIAN, M. B., AND B. W. HAMMER

1933. The source of the volatile acidity produced in milk by the citric acid fermenting streptococci. Jour. of Dairy Sci., 16: 157-164.

FAY, A. C., B. W. HAMMER AND F. W. FABIAN

1933. Methods of analyzing dairy products. (Report of subcommittee on bacteriological methods of examining ice cream.) Jour. of Dairy Sci., 16: 277-288.

- PARFITT, E. H., E. G. HOOD, B. W. HAMMER AND H. MACY**  
 1933. The microbiological analysis of butter (Report of subcommittee on microbiological methods of examining butter.) *Jour. of Dairy Sci.*, 16: 289-299.
- NELSON, J. A., AND B. W. HAMMER**  
 1933. Studies on the butter culture organisms in butter. *Jour. of Dairy Sci.*, 16: 375-385.
- OLSON, H. C., AND B. W. HAMMER**  
 1933. The agar disc method for studying the contamination from metal surfaces. *Iowa Agr. Exp. Sta., Bul.* 300.
- MICHAELIAN, M. B., R. S. FARMER AND B. W. HAMMER**  
 1933. The relationship of acetyl methyl carbinol and diacetyl to butter cultures. *Iowa Agr. Exp. Sta., Res. Bul.* 155.
- OLSON, H. C., AND B. W. HAMMER**  
 1933. Bacteriology of butter. V. Studies on the microorganisms in churns. *Iowa Agr. Exp. Sta., Res. Bul.* 159.
- OLSON, H. C., AND B. W. HAMMER**  
 1934. Organisms producing a potato odor in milk. *Iowa State College Jour. of Sci.*, 9: 125-127.
- COLLINS, M. A., AND B. W. HAMMER**  
 1934. The action of certain bacteria on some simple tri-glycerides and natural fats, as shown by Nile-blue sulphate. *Jour. of Bact.*, 27: 473-483.
- COLLINS, M. A., AND B. W. HAMMER**  
 1934. Types of lipolysis brought about by bacteria as shown by Nile-blue sulphate. *Jour. of Bact.*, 27: 487-496.
- OLSON, H. C., AND B. W. HAMMER**  
 1934. Numbers of microorganisms falling from the air in dairy plants. *Jour. of Dairy Sci.*, 17: 613-623.
- HAMMER, B. W., AND M. A. COLLINS**  
 1934. The numbers of lipolytic bacteria in various dairy products, as determined with Nile-blue sulphate. *Iowa Agr. Exp. Sta., Res. Bul.* 169.
- OLSON, H. C., AND B. W. HAMMER**  
 1935. Observations on yeasts causing gas in sweetened condensed milk. *Iowa State College Jour. of Sci.*, 10: 37-43.
- HAMMER, B. W.**  
 1935. The creatine test for acetyl methyl carbinol plus diacetyl in butter cultures. *Jour. of Dairy Sci.*, 18: 579-581.
- DOWNS, P. A., B. W. HAMMER, W. A. CORDES AND H. MACY**  
 1935. Bacteriological methods for the analysis of dairy products. (Report of subcommittee on bacteriological methods for analysis of condensed and evaporated milk.) *Jour. of Dairy Sci.*, 18: 647-656.
- HAMMER, B. W.**  
 1935. The diketone produced when butter cultures are steam distilled with ferric chloride added. *Jour. of Dairy Sci.*, 18: 769-771.
- MICHAELIAN, M. B., AND B. W. HAMMER**  
 1935. Studies on acetyl methyl carbinol and diacetyl in dairy products. *Iowa Agr. Exp. Sta., Res. Bul.* 179.
- LANE, C. B., AND B. W. HAMMER**  
 1935. Bacteriology of cheese. I. Effect of pasteurizing the milk on the nitrogenous decomposition in cheddar cheese. *Iowa Agr. Exp. Sta., Res. Bul.* 183.
- LANE, C. B., AND B. W. HAMMER**  
 1935. Bacteriology of cheese. II. Effect of *Lactobacillus casei* on the nitrogenous decomposition and flavor development in cheddar cheese made from pasteurized milk. *Iowa Agr. Exp. Sta., Res. Bul.* 190.
- HAMMER, B. W., G. L. STAHLY, C. H. WERKMAN AND M. B. MICHAELIAN**  
 1935. Reduction of acetyl methyl carbinol and diacetyl to 2,3-butylene glycol by the citric acid fermenting streptococci of butter cultures. *Iowa Agr. Exp. Sta., Res. Bul.* 191.

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## Students Receiving Master of Science and Doctor of Philosophy Degrees Under Bernard Wernick Hammer

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### MASTER OF SCIENCE

Baker, Merle P.	1923
Baril, Wilbert A. J.	1916
Benchetrit, Isaac	1933
Bendixen, H. A.	1920
Bennett, Frederick William	1932
Breazeale, Delbert F.	1929
Bryant, H. Wayne	1936
Claydon, T. J.	1936
Collins, Mervyn Avery	1931
Cordes, William A.	1920
du Buisson, Gehardus Hubertus	1925
Earle, Jacobus Albertus	1928
Erlich, Henry	1933
Fabricius, N. E.	1930
Farmer, Ralph S.	1930
Fennema, Nick	1916
Golding, Norman S.	1924
Goss, Emery Fox	1916
Grimes, Michael	1922
Harriman, Louis A.	1929
Harvey, Walter C.	1925
Herzer, Frederick Herman	1935
Hix, Robert H.	1915
Hussong, Ralph Victor	1928
James, Norman	1923
Jensen, Chris	1929
Keay, John	1933
Lane, Clarence Bronson	1932
Long, Henry Foltz	1933

Lunstrum, Carl Kenneth ..... 1935

Meuwissen, Galen H. ..... 1936

Neethling, Hendrik Ludolph ..... 1924

Nelson, John Albert ..... 1923

Patil, Vishram Hari ..... 1927

Quam, Sidney Nelson ..... 1927

Reynolds, Henry Julian ..... 1925

Sarkaria, Ram Singh ..... 1924

Shepard, Sidney ..... 1934

Slatter, Walter L. ..... 1936

Stine, James Bryan ..... 1934

Theophilus, Donald R. ..... 1924

Thorneloe, Keith Cartledge ..... 1930

Toens, Peter ..... 1922

Tong, Que Sun ..... 1925

Trout, George Malcolm ..... 1924

### DOCTOR OF PHILOSOPHY

Baker, Merle P.	1931
Collins, Mervyn Avery	1933
Derby, Herbert Andrew	1931
Fabricius, N. E.	1936
Fay, Arthur Cecil	1933
Golding, Norman Shirley	1929
Grimes, Michael	1923
Hansen, H. C.	1936
Harriman, Louis Albert	1934
Hussong, Ralph Victor	1932

**B. W. HAMMER PANEGYRIC**

Hyde, Lincoln Spencer .....	1927	Olson, Harold Cecil .....	1932
Jacobsen, D. H. ....	1936	Parfitt, Elliott Hill .....	1934
Lane, Clarence Bronson .....	1934	Patil, Vishram Hari .....	1929
Long, Henry .....	1936	Stine, J. B. ....	1936
Macy, Harold .....	1929	Theophilus, Donald R. ....	1935
Michaelian, Michael B. ....	1931	Weiser, Harry H. ....	1936
Nelson, F. Eugene .....	1936	Wilster, Gustav .....	1928
Nelson, John Albert .....	1932	Yale, Maurice Wade .....	1931