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**REIMBURSEMENT ACCOUNTS.**

Many employees who are required to travel on official business seem to think that suspensions in their reimbursement accounts reflect upon their ability, honor, or integrity and are therefore proper subjects for protest or criticism, all of which involves delay, friction, correspondence, and unnecessary expense. Reimbursement for expenses incurred by employees who travel for the department can be secured only when the expenditures are legally made—that is, for objects and in the manner prescribed by law or the decisions of the Comptroller, when authorized in advance by the proper official of the department, when made in accordance with the Fiscal Regulations, and when examined and approved by the proper administrative officials of the bureau and by the accounting officers of the Treasury.

When an employee performs travel for the department it is presumed that he is familiar with the Fiscal Regulations; that he has read his letter of authorization and any instructions that may have been issued, and that before incurring any expense he is satisfied that it is duly authorized and is necessary; that he will take receipts in proper form as required by the regulations; and that he will keep such a diary or daily memorandum of his movements and expenses as will enable him to make up his account at the close of the month. No doubt employees who travel endeavor to do this, but many of them, especially those who travel only at infrequent intervals, do not carry copies of the Fiscal Regulations with them and forget or overlook some of the requirements of the regulations. Others in their hurry to make train connections fail to obtain proper receipts. Still others fail to make a record of their movements or of small items of expense because of the pressure of other work, and must depend upon memory when the time comes to make up their accounts. Occasionally it happens also that an item of expense is incurred which appears to be necessary and proper to enable the traveler to make better train connections, to save time, or to accomplish the purpose for which he was sent into the field, but which may not be authorized by law, by the decisions of the Comptroller, by the Fiscal Regulations, or by his letter of authorization or instructions. A further fact must not be overlooked, which is that the taking of receipts and the making of a daily record of movements and items of expense are purely incidental, and wholly

aside from the main objects of travel. Employees are sent into the field to secure certain results or to carry on certain investigations, and it is to be expected that their time and attention will be mainly devoted to accomplishing these purposes. Many employees who are proficient in carrying on investigational work or who are highly efficient as administrators or in executing regulatory laws, are not skilled accountants. Furthermore, the requirements of the regulations and of the accounting officers of the Treasury are many and various. It is not surprising, therefore, that when an employee comes to make up his account at the close of the month minor errors and discrepancies will escape his notice.

**EXAMINATION OF ACCOUNTS.**

When the reimbursement account is received in the bureau it is given a careful administrative examination. This examination is required by law and is necessary to enable administrative officials to satisfy themselves that the allotment from the appropriation has been properly expended and the expenditures can be reported to Congress after the close of the fiscal year, which is also required by law. To make the required administrative examination, each bureau has one or more financial clerks whose duty it is to examine reimbursement accounts as they are presented, to see that the accounts are in the prescribed form, that all the necessary papers are attached, that the account and accompanying papers contain all the information necessary or required by the accounting officers of the Treasury; also the bureau accountant examines each item in the account to see whether it is of such a nature or is stated in such a manner that it may be approved by the chief of bureau, paid by the disbursing clerk, and audited and finally settled in the Treasury Department without the necessity of referring it back to the employee for correction or explanation. When defects, discrepancies, errors, or omissions are discovered, instead of returning the entire account for correction, thereby delaying payment for days or weeks, it is customary to "suspend" particular items that are questioned and to forward the account for approval and settlement of the remaining items. The sole purpose of making suspensions is to avoid delay in reimbursing the employee for items concerning which there is no question and to give him an opportunity to resubmit the few items that are questioned, with proper

correction or explanation, so that they may be allowed in a later account.

The financial clerks in the various bureaus of necessity become familiar with the requirements of law, the Fiscal Regulations, the rulings and decisions of the Comptroller and accounting officers of the Treasury, and with the procedure to be followed in securing the prompt settlement of accounts. They usually know from long experience that it would be a waste of time to forward a defective account or an account containing items not authorized or properly stated to the disbursing clerk for payment or to the Treasury Department for settlement. The making of suspensions becomes a matter of routine to the financial clerks, and in making them they are giving employees whose reimbursement accounts are under consideration the benefit of their experience and expert advice, and are doing all in their power to expedite the settlement of the accounts. The character of employees who travel for the department is so uniformly high and their sense of honor so acute that the question of fraudulent intent is rarely presented or considered in reimbursement accounts. With few exceptions, items which are suspended from reimbursement accounts are susceptible of explanation and are resubmitted in such a form that they later can be allowed. If the comments of the financial clerk in his letter notifying the employee of a suspension from his account are so worded as to imply a suspicion on the part of the financial clerk that the employee is guilty of wrongful conduct in submitting the item, it is nearly always for the purpose of indicating to the employee the fact that the suspended item is open to criticism outside of the bureau, where neither the employee nor the facts which justify the expenditure are known. By suspending the item and pointing out its questionable character the employee is given an opportunity to restate the item or to supply additional information so as to make a clear record and remove all possible ground for suspicion.

The ultimate arbiter of differences in accounts is the Comptroller of the Treasury, whose decisions under the law are "final and conclusive upon the executive departments." It is therefore essential that all employees of the department cooperate with a view to presenting accounts in strict accordance with the Fiscal Regulations and the decisions of the Comptroller, and opportunities for effective cooperation are presented by temporary suspensions of questionable items for suitable explanation.

## IMPORTANT RULING.

### DISALLOWANCE BY THE AUDITOR.

(Contribution from the Office of the Secretary.)

Under date of September 23, 1915, the Auditor for the State and Other Departments, in a letter to the claimant, gave as his reasons for the disallowance of a claim for drinking water, which was purchased on account of the water used in an office having been contaminated in a tank, that the municipal water supply was suitable for consumption as drinking water; that there was no evidence that an effort was made or that opportunity did not exist to procure water piped direct from the mains without the intervention of the tank; that the city water was used by the Treasury forces in the same building; that the departments of the Government were put on notice by a decision of the Comptroller dated July 21, 1915, that purchases of drinking water were not authorized save in cases where it could be shown that wholesome water was not obtainable without expense, and that the purchase of the water was unnecessary and unauthorized.

### TESTIFYING IN PRIVATE SUITS.

(Contribution from Office of Solicitor.)

In response to the question as to whether certain officers of the department should be authorized to testify in a private suit as to data secured by them in the course of their official work and contained in an unpublished report on file in the department, or whether the litigant desiring the testimony should be requested to use a certified copy of the report for this purpose, the Solicitor, in an opinion dated September 18, 1915, says:

"It is believed that it is the intention of the Administrative Regulations to urge the use of certified copies of the records of the department in place of the personal testimony of its officers only whenever the certified copies would properly serve the purpose as evidence. In the case at hand, it is doubtful whether a certified copy of the data secured by — and — would be admissible without their testimony as evidence of the facts. Accordingly, if there are no administrative objections to the disclosure of these facts in the suit referred to, it is suggested that you submit to the Secretary, for his approval, your recommendation that — and — be authorized to respond to subpoenas and testify in the case as to the results of their experiments in southern California."

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## BIOLOGICAL EFFECT OF FOOD AND DRUG PRODUCTS.

(Contribution from Bureau of Chemistry.)

Studies under the appropriation for the biological investigations of food and drug products fall into three groups: (1) The chemical composition of food products in so far as it affects their action on the body; (2) the physiological action of food and drug products upon the organism; (3) the effect upon the organism of substances found in food as contaminations or preservatives.

The work in the first group is, at the present time, confined to a study of the composition of vegetable proteins and of the substances known as "vitamines."

It is now well known that the various proteins differ widely in their nutritive value. This is due to the fact that the proteins themselves, although they differ but slightly in their nitrogen content, are composed of a large number of different nitrogenous compounds whose proportions vary greatly with the individual proteins. Some proteins will support life but will not produce growth, others will not maintain life, while some are "perfect" proteins and will produce normal growth. This knowledge has led to new views in nutrition and has opened up a promising field for future investigations.

Although the various nitrogenous compounds are combined to form the proteins that are found in seeds, our knowledge of the commonest of them is very incomplete. The Bureau of Chemistry has, therefore, been making a study of the amino acids that are found in common seeds. Accurate analysis has been made of Indian corn, cotton seed, kafir corn, tomato seed, and the white potato. These results are being prepared for publication and other equally important agricultural products are under investigation. The knowledge of the amino acids present in these important foodstuffs thus obtained will make it possible to judge

whether each one of these products is a complete nitrogenous diet, and if it is not, will indicate in what way it can best be supplemented.

The vitamins are substances which apparently are present in small amount in many foods. Their absence from the diet is believed to lead to serious disturbances of health of the general nature of scurvy or beriberi. The Bureau of Chemistry is engaged in investigating the nature of these substances. The work has only recently been organized, so that as yet no progress report can be made.

Experiments have also been undertaken upon the effect of prolonged feeding of saponin on the blood of animals. Saponins are substances widely distributed among plants. They possess the property of dissolving red blood corpuscles. Since some of the saponins are extensively used in carbonated beverages to produce a heavy foam, the information obtained in these investigations is required in order that the Bureau of Chemistry may take appropriate action under the Food and Drugs Act with reference to food products containing saponins.

A large series of other substances are being investigated with reference to their physiological effect, such as citric and malic acid, tin, zinc, and certain anilin dyes, all of which are occasionally added to foods or may occur in them as accidental contaminations.

## FLOOD PROTECTION.

The Weather Bureau is now in informal cooperation with two so-called conservancy districts, formed in Ohio for the prosecution of measures of flood protection. One of these, the Franklin County conservancy district, is intended to protect the city of Columbus and the cities and towns on the Scioto River below that point. In cooperation with the directors of this district, the Weather Bureau is collecting rather comprehensive statistics of floods, river stages, and rainfall, and incidentally data on the loss to agriculture from floods during the present season.

The loss to crops and damage to farm lands from this cause in the United States during 1915 has been exceptional, and the reconnaissance now in progress in the Scioto Valley affords an excellent opportunity for gathering reliable information as to its actual extent.

The second of the conservancy districts lies in the watershed of the Great Miami River and is intended to protect Dayton and the other large cities farther down the river. With the directors of this district, the Weather Bureau is cooperating mainly in collecting hydrological data.

## COOPERATIVE RELATIONS.

Not only is much of the work of the United States Department of Agriculture carried on in cooperation with the State authorities and with voluntary scientific and educational organizations, but many scientists in the Government service are in their individual capacities members of such associations, and thus aid in directing for a common purpose the scientific and educational work throughout the country.

### BUREAU OF CHEMISTRY.

There is, to begin with, very close cooperation between the Bureau of Chemistry and the Association of Official Agricultural Chemists, an organization composed of analytical chemists connected with the Department of Agriculture, or with the State and National agricultural experiment stations, the agricultural colleges, and other institutions into whose hands has been placed the official control of human food, drugs, fertilizers, soils, feeds, dairy products, and other materials connected with agriculture. The object of this Association is to secure uniformity and accuracy in the analysis of these products. In this work the Bureau of Chemistry is directly concerned, for the rules and regulations for the enforcement of the Food and Drugs Act provide that the analysis of food and drug products must be made in accordance with the measures officially adopted by the Association of Official Agricultural Chemists unless otherwise directed by the Secretary of Agriculture. At one time, in fact, the Department of Agriculture published the proceedings of the association. This is no longer done, but the closest cooperative arrangements are still maintained.

The Association of American Dairy, Food, and Drug Officials is a somewhat similar organization, composed of Federal and State officers who are engaged in enforcing laws which control foods, drugs, stock feed, fertilizers, insecticides, and dairy products. In this work the State officials have the same purpose as the officials of the Bureau of Chemistry, viz, the elimination of all adulterated and misbranded articles. The Federal officials deal with these products as articles of interstate commerce, and the State officials deal with the manufacture and sale of the same products within the State boundaries. The problems which the two have to solve are so close as to be in many cases almost identical. In order to prevent duplication of work, therefore, and for mutual assistance, an office of State Cooperative Food and Drug Control is maintained in the Bureau of Chemistry. The object of this office is to facilitate the exchange of information on all matters of interest in the enforcement of laws controlling the class of products already mentioned. In addition

to this exchange of information, the Bureau of Chemistry and State officials render mutual assistance whenever this is possible and frequently cooperate in a specific campaign within a definite territory. For example, such a campaign was recently carried on in Iowa and Illinois in order to improve the milk supply in the section around Davenport, Iowa, and Rock Island, Ill. In such a campaign, the bureau deals with all interstate shipments and the State municipal authorities with violations of the law which the Federal authorities can not reach because they are complete within the limits of a single State, and do not involve articles which are shipped in interstate commerce.

In the work of standardization, the Bureau of Chemistry cooperates through a Joint Committee on Definitions and Standards with the Association of Official Agricultural Chemists and the Association of Dairy, Food, and Drug Officials. The specific object of this committee is to adopt definitions and standards for food and drug products. In this way it aims to secure uniformity of action on the part of Federal and State officials.

In much the same way the Bureau of Chemistry is associated with the committee of the United States Pharmacopœia Convention, which revises and publishes the United States Pharmacopœia. This cooperation is specifically recognized by law, the agricultural bill for the current year carrying authority for the Bureau of Chemistry to assist in the revision of the pharmacopœia. This publication was originally compiled in 1820 and is revised every 10 years by a committee appointed by the Pharmacopœia Convention, which is composed of delegates representing the professions of medicine, pharmacy, and chemistry. The pharmacopœia contains standards for various drugs and these standards have been made the legal ones under the Food and Drugs Act. According to this act, when any drug is sold under or by a name recognized by the United States Pharmacopœia, it must conform to the standard laid down in that publication in strength, quality, and purity, or else the actual facts in these respects must be plainly stated upon the label of the package. If the facts are not so stated and if, upon analysis, the drug is found to fall below the standard set by the pharmacopœia, it is adulterated or misbranded.

With the American Chemical Society the Bureau of Chemistry is now cooperating in developing methods of analysis. In particular, a project looking toward the standardization and uniformity of methods of water analysis is now under way, being in charge of a committee representing the American Chemical Society, the Association of Official Agricultural Chemists, the American Public Health Association, and the Bureau of Chemistry.

Similar projects dealing with the analysis of turpentine, rosins, and leather products

are being worked out in cooperation with the American Society for Testing Materials and the American Leather Chemists Association.

With the Carnegie Institution of Washington the Bureau of Chemistry is now engaged in work relating to food spoilage.

### PUBLIC ROADS AND RURAL ENGINEERING.

Much of the work of the Office of Public Roads and Rural Engineering is accomplished by agreements with State engineering departments, drainage organizations, county authorities, etc., by which the Federal office assists with advice and expert supervision, while the other expenses are met by those who are to receive the direct benefit of the improvements. Thus, the State Prison Commission of Georgia and the State Road Department of West Virginia are each in communication with the Office of Public Roads, perfecting plans for the construction and operation of experimental convict road camps. These camps are to be built and maintained by the two States in conjunction with selected counties, while the Federal office is to work out the details of management, sanitation, etc.

The office also has cooperative agreements with the State Engineering Departments of California, Arizona, and Nevada in connection with the utilization of water in irrigation practice. Federal irrigation engineers are carrying out conjointly with the State engineers investigations in this region. In other States, collaborators in the State highway departments have been supplying the office for a number of years with data on roads, road revenues, and, in some cases, the location of road material.

With the American Highway Association and the American Bar Association the Office of Public Roads has also completed a compilation of the road laws of the various States of the Union. With the assistance of the Bureau of Municipal Research, of New York City, this compilation is now being analyzed and a digest made of it.

In their individual capacities employees of the office are members of a number of scientific and technical societies, such as the American Society of Civil Engineers, the American Highway Association, and the International Engineering Congress. In these and similar societies the members of the office contribute toward the standardization of definitions and tests of road materials, etc. The director of the office is also chairman of the Committee on Country Life of the National Congress of Mothers and in this capacity is brought into direct relationship with a number of women's clubs, and is in a position to assist them in their efforts to bring about road improvement.

### BIOLOGICAL SURVEY.

The Biological Survey is in direct touch with scientific museums, and through these channels the department is enabled to

acquire a great amount of information in its technical study and determination of the birds and mammals of North America. In return the department is able to loan material for study to the museums and to identify many of their specimens. These institutions include the United States National Museum, Washington; Academy of Natural Sciences, Philadelphia; American Museum of Natural History, New York; Museum of the Institute of Arts and Sciences, Brooklyn; Museum of Comparative Zoology, Cambridge; Museum of the Boston Society of Natural History; Carnegie Museum, Pittsburgh; Field Museum of Natural History, Chicago; University of Michigan Museum, Ann Arbor; Public Museum of the City of Milwaukee; University of Nebraska Museum, Lincoln; Kansas University of Natural History, Lawrence; Colorado Museum of Natural History, Denver; Museum of the California Academy of Sciences, San Francisco; Museum of Vertebrate Zoology, Berkeley; Museum of History, Science, and Art, Los Angeles; Provincial Museum, Victoria, British Columbia; Victoria Memorial Museum, Ottawa, Ontario; and the British Museum, London.

Scientific societies and institutions with which the department comes in contact through the Biological Survey, either in official relation or through membership of the staff in their individual capacities include the American Association for the Advancement of Science; National Academy of Science; American Ornithologists' Union; American Society of Naturalists; Entomological Society of America; National Geographic Society; the Cooper, Delaware Valley, Wilson, and Nuttall Ornithological Clubs; Biological Society of Washington; Entomological Society of Washington; Washington Biologists' Field Club; Academy of Sciences of Washington, and of various States; Boston Society of Natural History; Wisconsin Society of Natural History; as well as such foreign societies as the Hungarian Central Bureau for Ornithology; British Ornithologists' Union; Deutsche Ornithologische Gesellschaft; Royal Australian Ornithologists' Union; South African Ornithologists' Union; Bombay Natural History Society; Agricultural Society of London; and Foreign Bird Club of London.

In the conservation of wild life the survey's work brings the department into close touch with Federal, State, and Canadian officials concerned with the protection of birds and game; with State and Canadian organizations; with the Royal Society for the Protection of Birds, London; and with such national organizations as the following: American Bison Society; American Game Protective and Propagation Association; American Ornithologists' Union Committee on Protection of North American Birds; Boone and Crockett Club; Campfire Club of America; Game Conservation Society; Na-

tional Association of Audubon Societies; National Association of Game Commissioners and Wardens; New York Zoological Society; North American Fish and Game Protective Association; and the Permanent Wild Life Protection Fund.

#### BUREAU OF ENTOMOLOGY.

The Bureau of Entomology is now engaged in attacking the spotted-fever tick in Montana and in this work is cooperating with the State Board of Entomology and the United States Public Health Service. The State board furnishes the necessary legal machinery for the work of the two other organizations.

The bureau is also cooperating with Tulane University in the campaign against malaria-carrying mosquitoes. The bureau's agents collect material in the field, and technical studies of this are made in the university at New Orleans. Similar cooperative work dealing with the diseases of insects is carried on with the Bussey Institution of Harvard University.

In Hawaii the bureau is engaged, together with the Territorial Department of Agriculture, in experiments looking to the control of the Mediterranean fruit fly by the introduction of parasites from other parts of the world. The bureau is also in cooperation with all of the museums of the country and assists them in the determination of specimens.

#### BUREAU OF ANIMAL INDUSTRY.

In order to secure inspectors with the proper knowledge of veterinary subjects necessary to perform their duties in connection with the eradication of infectious diseases of animals and the inspection of meat for human food, the civil-service examination for the position of veterinary inspector is restricted to graduates from a list of recognized veterinary colleges. In cooperation with the Department of Agriculture the Civil Service Commission has drawn up regulations which prescribe the standards the college must comply with before it can be included in this list. Any college that fails to meet the provisions of these regulations is removed from the list and its graduates are excluded from the civil-service examinations until the college has complied with the requisite conditions. The colleges are also required to furnish at the beginning of each session a list of all the students enrolled and the educational basis on which each was admitted. At the end of each session a list of graduates is forwarded to the bureau.

The Pathological Division of the bureau keeps on hand a supply of stock cultures of the more common bacteria which cause disease in animals. These cultures are sent on request to medical schools and the various laboratories of good standing throughout the country, and thus facilitates the work of research and instruction in animal diseases.

The Dairy Division not only works with State colleges and experiment stations, but lends active aid to municipal authorities in their efforts to improve the milk supply. The legal machinery is, of course, in the hands of the State and city boards of health, but the information and experience of the Dairy Division are placed at their disposal. When chambers of commerce hold milk and cream contests in order to stimulate the production of pure dairy products, the division also assists in the work of scoring. In the same way it has taken part in the work of judging dairy cattle at the National Dairy Show.

In Wisconsin the State Dairymen's Association has an appropriation from the legislature to promote cow-testing associations. In this the division is cooperating with the association and in a number of cases has furnished speakers for it.

#### WEATHER BUREAU.

In the collection and distribution of information, as well as in the scientific investigations which it is continually carrying on, the Weather Bureau has many affiliations with outside organizations. Twenty-three universities, colleges, and schools and six observatories render to the bureau monthly reports of temperature, rainfall, and other meteorological conditions. Officials of the Weather Bureau give courses of lectures or instruction in meteorology at a number of leading universities and are frequently asked to deliver single lectures from time to time. At the present time, regular courses of lectures are being given by the Weather Bureau officials in 19 educational institutions.

Reports of earthquake data are also received from a large number of institutions and sent to the Seismological Section, which has recently been established in the bureau. Studies of evaporation and solar radiation are carried on in cooperation with various organizations, as at the American University, at Washington, D. C. That institution furnishes grounds and office facilities, and employees of the Weather Bureau make daily measurements of evaporation and solar radiation. Measurements of solar radiation are also being conducted under similar conditions of cooperation at the University of Wisconsin and the University of Nebraska.

In the work of forecasting weather conditions, the bureau maintains reciprocal relations with the Canadian Meteorological Service, and meteorological reports are exchanged by telegraph between the two.

#### FOREST SERVICE.

The Forest Service is brought into close relationship with a number of scientific societies which are engaged in the work of standardization or in research. Among these is the American Society for Testing Materials, which, with the Forest Service, is working to establish specifications for

structural timber, for wood preservatives, and for methods of treating wood to prevent decay. Similar cooperation is being carried on with the American Wood Preservation Association to discover the best methods of treating wood and the relative value of wood preservatives. A committee of the American Society of Civil Engineers is also investigating various forms of track fastenings, and in this work the Forest Service is taking part.

The service is also cooperating with the American Institute of Architects in standardizing wooden structural forms; with the American Pulp and Paper Association in seeking to find possible substitutes for spruce in the ground wood process of paper making; with the National Association of Hickory Manufacturers in the testing of vehicle parts and the establishment of specifications for wooden spokes; with the Bureau of Explosives in testing various forms of wooden containers; with the National Electric Light Association by furnishing standard specifications for wood preservatives; with the National Board of Fire Underwriters by furnishing specifications for wooden structural forms; with the Industrial Commission of Wisconsin by furnishing standard working stresses in wooden construction; with the Southern Pine Association by furnishing specifications for structural timbers.

The American Society of Municipal Improvements also publishes the results of the Forest Products Laboratory investigations of wooden paving bricks. In addition, the Forest Service works with State foresters, bureaus of forestry, etc., in more than 30 States in conducting studies of wood-using industries. It is also cooperating with some 20 States, under the terms of the Weeks law, in protecting from fire the forest cover on the watersheds of navigable streams.

#### MARKETS AND RURAL ORGANIZATION.

In the surveys which now form an important part of the work of the Office of Markets and Rural Organization, the Department of Agriculture has had the assistance of the State boards of agriculture in North Carolina and Arkansas in its primary cotton market surveys in these areas.

The office is conducting social and economic surveys in Albemarle County, Va., and Orange County, N. C., in cooperation with the universities in those States. In a social and economic survey and subsequent organization work in Chilton County, Ala., the office has had the cooperation of the State board of health. Assistance in organization work in Chilton County, Ala., has also been given by the American Red Cross Town and County Nursing Service, especially in the establishment of a county rural nurse.

An investigation of marketing butter is being carried on cooperatively with the Dairy and Food Department of the State of

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## BIOLOGICAL COLLECTIONS.

(Contribution from the Biological Survey.)

To make available definite information concerning the species and distribution of mammal and bird life of the United States the Biological Survey collects and preserves specimens from all parts of the United States, Alaska, and the adjacent territory of Mexico and Canada.

As material accumulated cooperative arrangements were made with the United States National Museum to furnish space and cases for the survey collections. By act of Congress, all specimens collected by Government parties ultimately become the property of the National Museum, but under the present arrangement the collections made by the Biological Survey remain in its custody as long as needed in its investigations. Specimens no longer needed are from time to time relinquished to the Museum. Plants, reptiles, and other specimens collected incidentally for general information are at once transmitted to the Museum. It is believed that the collection is the largest and most complete in existence from any area of similar extent.

The collection contains numerous species of foxes, mink, and other fur-bearers, varying greatly in size and in the quality of their fur.

It supplies much of the fundamental data on which is based the Survey's economic and other practical work dealing with the distribution and relations of birds and mammals to agriculture, stock growing, and forestry, and in demonstrating the value of our game birds and game mammals as national resources. The information provided by the collection is of special service in connection with the Federal Migratory Bird Law and activities for the conservation of mammals.

The practical value of the collection is well illustrated in the case of the ground squirrels, which in California proved to be carriers of the dread bubonic plague. Through the collection it was possible, when requested by the Public Health Service, to map with fair accuracy the distribution of the various species of these animals in the United States. Similar information was furnished concerning the distribution of native mammals in Montana in connection with the effort by the Public Health Service to locate the source of the deadly spotted fever.

The collections also serve a useful purpose as a basis for reference in other directions. Scalps and other parts of mammals submitted for the payment of bounties in the various States are continually referred to the bureau for positive identification. To meet this demand specimens of the young of various predatory animals are being gathered as rapidly as possible. Already many attempts at fraud have been shown by such comparison. Many species of noxious rodents injurious to forestry or agriculture are

also being submitted from experiment stations, forestry officials, and farmers for identification and advice as to their control.

## CHEMISTRY NOTES.

(Contribution from Bureau of Chemistry.)

**Sauerkraut investigation.**—The Microbiological Laboratory is making a study of the normal composition of pure kraut, the proper fill for canned kraut, and the use of pure cultures in its manufacture. Attention will be given to improving methods of manufacture and utilizing by-products, as well as to securing data for use in the enforcement of the Food and Drugs Act. A number of samples have been collected and analyzed. Data collected in connection with the samples will include information as to the raw materials used, the time and temperature of fermentation, method of processing, the fill of the cans, including the amount of brine or salt used, and the determination of solids, sugars, acid, crude fiber, and ash in the canned product, with further determinations if they appear necessary.

#### Convention of milk inspectors.

The fourth annual convention of the International Association of Dairy and Milk Inspectors will be held at the Raleigh Hotel, Washington, D. C., on October 27, 28, and 29, 1915. This association was organized for the purpose of developing and improving methods of inspecting dairies and milk. Its membership is made up of inspectors who are now engaged, or who have been engaged, in official milk or dairy inspection work for the Federal Government or for any State or city. At this convention various questions relating to inspection of dairies and improvement of the milk supply will be discussed.

#### Meeting of food standards committee.

The Joint Committee on Definitions and Standards, representing the United States Department of Agriculture, the Association of American Dairy, Food and Drug Officials, and the Association of Official Agricultural Chemists, will hold a meeting in Washington, D. C., in the Bureau of Chemistry, at 10 a. m. on November 18, 1915. At this meeting standards and definitions for various food and drug products will be considered.

#### Meeting of official agricultural chemists.

The Association of Official Agricultural Chemists will hold their annual convention in Washington, D. C., on November 15, 16, and 17, 1915. Methods of analysis of foods, drugs, and agricultural products will be discussed. The methods of analysis adopted by this association are used in the official work of the Department of Agriculture in enforcing the Food and Drugs Act, and by the State food and drug officials and experiment stations.

## PLANT INDUSTRY REVIEWS.

(Contribution from Bureau of Plant Industry.)

**Belle Fourche Experiment Farm.**—A circular describing the progress of the experiments conducted during the season of 1914, by Farm Superintendent Aune, at the Belle Fourche Reclamation Project Experiment Farm in South Dakota, was issued on August 28. The work on this project consists of a number of field-crop experiments with grain and forage crops, tests of vegetables, orchard, and shade trees, and a number of rotation and tillage experiments, both on dry land and with irrigation. From 1907 to 1911 all the experiments were conducted on dry land. Irrigation water was first brought to the farm in 1912, when experiments under irrigation were commenced.

**San Antonio Experiment Farm.**—The season of 1914 was particularly favorable for crop production in the region of San Antonio, Tex. Unusually heavy rains during the fall of 1913 filled the soil with moisture to an extent greater than for many years. While the rainfall for 1914 was nearly 5 inches less than in 1913, the crop yields of the experiment farm and in the San Antonio region generally were in the main larger than for the previous year.

A circular describing the San Antonio Experiment Farm and the results of experimental work thereon in 1914, by Farm Superintendent Hastings, was issued on August 28. The rotation experiments outlined in previous reports have been continued, and the crops that have been grown include corn, oats, cotton, Sudan grass, milo and other sorghums, cowpeas, and field peas.

**Rice in California.**—The Office of Cereal Investigations of the department began a series of tests of different varieties of rice in the vicinity of Biggs, Cal., in the spring of 1909. These tests were continued in the same locality during the season of 1910-11, and during this period similar tests were made of a smaller number of varieties at several places in the Sacramento and San Joaquin Valleys. These plantings furnished some valuable data on the commercial possibilities of rice culture in California and were largely responsible for the beginning of the industry.

In order that these studies might be enlarged and conducted under conditions more favorable for experimental work, the Biggs Rice Field Station was established in 1912 through cooperation with the Sacramento Valley Grain Association, an organization composed of ranchers. The station farm, consisting of 57 acres, is located 4 miles northwest of Biggs and is irrigated by gravity from the Feather River

through a canal system operated by the Sutter-Butte Canal Co. Its soil is black adobe, which is representative of a considerable acreage of land in the Sacramento Valley upon which rice has been produced commercially for the last three years.

A Farmers' Bulletin (No. 688) embodying recommendations for the culture of rice, based on the results obtained in these experimental plantings, was issued on September 18. The topics covered include the general requirements of the crop; preparation of the seed and seed bed; manner, depth, rate, and time of seeding; irrigation and drainage; harvesting, thrashing, and cost of production; varieties and their improvement; and weed control. A short account of the preparation of rice products for market is also given.

**Plant introductions.**—Inventory No. 34, of the Office of Foreign Seed and Plant Introduction, giving definite details concerning the plant material imported during the period from January 1 to March 31, 1913, was issued on September 8. The numbers listed in this inventory are largely of material sent in by correspondents in foreign countries who are interested in plant-introduction work and who have acted in response to requests or on their own initiative.

**Eradication of ferns.**—Nearly 7,500 species of ferns are recognized in the world, of which number over 200 are known to be native to the United States. A few species have become weed pests in this country, and a bulletin devoted to the consideration of the control of these weedy ferns in the pasture lands of the Eastern States, by H. R. Cox, was issued on September 18.

Two kinds of ferns have become serious weed pests in the United States—namely, the hay-scented fern and the brake. It has been found that cutting off the tops close to the soil surface twice a year for two years will kill out nearly all of the ferns. The best times to do the cutting are just previous to spring, or about the middle of June and the middle of August, in southern New York. The use of spraying material for the control of ferns also receives consideration, and practical suggestions are given.

**Shipment of red raspberries.**—The results of investigations conducted by the Bureau of Plant Industry of the relation of methods of handling and refrigeration to decay and deterioration of berries in transit to distant markets are embodied in Department Bulletin No. 274, by H. J. Ramsey, which was issued on July 8. Red raspberries were used in the experimental work almost exclusively, although occasional lots of loganberries and strawberries were included during the season of 1911. It is demonstrated that the care exercised in

handling and the promptness with which the fruit is cooled are among the most important factors determining the distance over which red raspberries can be successfully shipped. These two factors, more than any others, determine the condition of the berries on arrival at the market and the area of successful distribution.

Numerous graphic diagrams and other illustrations lend clearness to the presentation of results, and a series of recommendations is embodied in a comprehensive summary at the close.

**Vinifera grape varieties.**—A résumé of the viticultural investigations in the Vinifera regions of the United States, supplementary to a similar report made five years ago, was issued on August 6, as Department Bulletin 209, by George C. Husmann.

The fundamental problems of grape growing in the Vinifera region, require (1) a comprehensive test of the resistant varieties of vines, to determine their adaptability to the different conditions; (2) a study of the congeniality of Vinifera varieties to the different resistant-stock varieties; (3) a study of the behavior of fruiting varieties; (4) a consideration of all classes of grapes with reference to their resistance to destructive insects and diseases.

Of the 23 species of grapes native to North America, 14 have been found sufficiently phylloxera-resistant to merit the attention of the viticulturist, and these are under test in the experiment vineyards of the department. Efforts have also been made to produce hybrids between the Vinifera and American native-grape varieties which would be resistant to phylloxera and at the same time give satisfactory crops of fruit. A number of these hybrids are under test in the experiment vineyards, but it is not yet possible to say that any of them are better than or equal to some of our finer varieties of native American grapes or that they have as good phylloxera-resistant qualities. Most vine varieties making perfect growth on resistant stocks are found to yield heavier crops than the same variety when grown on its own roots.

In the absence of information, growers in attempting to reestablish Vinifera vineyards have taken chances in planting non-resistants, or in using the wrong resistants, or in using resistants which were not congenial to the varieties they were growing. Other causes of loss have been the purchase of bench grafts on resistant stocks not true to name and the lack of proper care and management of resistant vineyards, such as allowing roots to grow from Vinifera tops grown on resistant stocks. These mistakes have delayed the general use of resistants. There should, the author urges, be no further delay of this kind.

## STATION PUBLICATIONS.

(Contribution from States Relations Service.)

The station publications noted in this list are not distributed by the Department of Agriculture, but can usually be obtained by department workers, as far as the supply will permit, by applying to the stations issuing them. An address list of the stations will be furnished upon request by the States Relations Service. Copies of these publications can be consulted in the library of that service, and also ordinarily can be borrowed from the department library.

## CROPPING SYSTEMS AND SOIL STUDIES.

*Melilotus indica* as a Green Manure Crop in Southern California. By W. M. Mertz. (California Station Circular 136, pp. 4.)

The Biochemical Decomposition of Nitrogenous Substances in Soils. By W. P. Kelley. (Hawaii Federal Station Bulletin 39, pp. 25, fig. 1.) A limited number of copies of this publication is available for free distribution by the Department of Agriculture.

The Soils of the Hawaiian Islands. By W. P. Kelley et al. (Hawaii Federal Station Bulletin No. 40, pp. 35.) A limited number of copies of this publication is available for free distribution by the Department of Agriculture.

McLean County Soils. By C. G. Hopkins et al. (Illinois Station Soil Report 10, pp. 52, pls. 4, figs. 8.)

Sulfocation in Soils. By P. E. Brown and E. H. Kellogg. (Iowa Station Research Bulletin 18, pp. 47-111.)

The Relation of Moisture to Yield of Winter Wheat in Western Kansas. By L. E. Call and A. L. Hallsted. (Kansas Station Bulletin 206, pp. 3-34, figs. 12.)

Corn: I. Relation of Cultivation to Yield and Character of Crop. II. Relation of Number of Stalks per Hill to Yield. By C. P. Bull. (Minnesota Station Bulletin 149, pp. 3-23, figs. 7.)

Tobacco Growing in Minnesota. By C. P. Bull. (Minnesota Station Bulletin 150, pp. 3-47, figs. 26.)

Management of Irrigated Land. By F. Knorr. (Nebraska Station Bulletin 152, pp. 24, fig. 1.)

Culture of the Potato. By J. W. Wellington. (New York State Station Circular 36, pp. 4.)

Alfalfa on Land not Naturally Adapted to that Crop. By J. F. Barker. (New York State Station Circular 39, pp. 8, pls. 2.)

Results of Variety Tests of Wheat, Oats, and Rye. By G. M. Garren. (North Carolina Station Bulletin 232, pp. 3-23.)

Fertility and Weeds. By J. W. Ince. (North Dakota Station Bulletin 112, pp. 235-247, figs. 6.)

Report of Progress in Sugar Beet Trials. By J. W. Ince. (North Dakota Station Bulletin 113, pp. 251-269, figs. 5.)

Home Grown Seed Corn. By R. C. Doneghue. (North Dakota Station Circular 8, pp. 13, figs. 9.)

## ANIMAL INDUSTRY.

Filling Silos. By J. B. Fitch. (Kansas Station Circular 53, pp. 8, figs. 3.)

Alfalfa Hay for Hogs. By L. Foster and H. H. Simpson. (New Mexico Station Bulletin 96, pp. 3-32, figs. 3.)

Economic Feeding for Milk Production in New Mexico. By L. Foster and R. W. Latta. (New Mexico Station Bulletin 98, pp. 34, figs. 7.)

Poultry: I. Breeds and Breeding; Poultry Diseases; Farm Poultry Housing. By A. F. Rolf. II. Incubation, Brooding, and Feeding. By L. F. Payne. (Oklahoma Station Bulletin 106, pp. 3-32, figs. 9.)

## DAIRYING.

Bacteriological Studies on the Coagulation of Evaporated Milk. By B. W. Hammer. (Iowa Station Research Bulletin 19, pp. 119-131, figs. 3.)

Bacteriological Studies on Two Yellow Milk Organisms. By B. W. Hammer. (Iowa Station Research Bulletin 20, pp. 135-149, figs. 2.)

Using the Babeock Test. By J. M. Fuller. (Oklahoma Station Bulletin 107, pp. 3-15, figs. 15.)

A Study of the Manufacture of Dairy Butter; Methods of Making Farm Butter. By E. L. Anthony. (Pennsylvania Station Bulletin 135, pp. 3-30, figs. 6.)

Smoothness and Keeping Qualities in Ice Cream as Affected by Solids. By W. K. Brainerd. (Virginia Station Technical Bulletin 7, pp. 154-159, figs. 9.)

## FRUITS AND VEGETABLES.

Wood Decay in Orchard Trees. By W. T. Horne. (California Station Circular 137, pp. 13, figs. 7.)

Distribution of Station Apples. By U. P. Hedrick. (New York State Station Circular 28, pp. 3.)

Culture of Sweet Corn. By J. W. Wellington. (New York State Station Circular 29, pp. 3.)

Strawberries. By O. M. Taylor. (New York State Station Circular 31, pp. 10.)

Currants. By O. M. Taylor. (New York State Station Circular 32, pp. 7.)

Raspberries, Blackberries, and Dewberries. By O. M. Taylor. (New York State Station Circular 33, pp. 10.)

Tomato Culture. By J. W. Wellington. (New York State Station Circular 34, pp. 3.)

Hot and Cold Frames. By J. W. Wellington. (New York State Station Circular 35, pp. 4.)

Second Distribution of Station Apples. By U. P. Hedrick. (New York State Station Circular 37, pp. 2.)

Rhubarb Culture. By C. C. Carstens. (New York State Station Circular 38, pp. 4.)

Onion Culture. By J. W. Wellington. (New York State Station Circular 40, pp. 6.)

Home Canning of Fruits and Vegetables. By F. J. Crider. (South Carolina Station Circular 27, pp. 3-15.)

Some Effects of Pruning, Root Pruning, Ringing, and Stripping on the Formation of Fruit Buds on Dwarf Apple Trees. By A. W. Drinkard, jr. (Virginia Station Technical Bulletin 5, pp. 96-120, figs. 9.)

The Fertilization of Peach Orchards. By W. H. Alderman. (West Virginia Station Bulletin 150, pp. 39, figs. 11.)

An Apple Orchard Survey of Berkeley County. By E. C. Auchter. (West Virginia Station Bulletin 151, pp. 3-75, pl. 1, figs. 25.)

## INSECTS AND ANIMAL PARASITES.

New Dosage Tables, Fumigation Studies No. 7. By C. W. Woodworth. (California Station Bulletin 257, pp. 3-16, figs. 3.)

Control of Raisin Insects. By F. T. Bioletti. (California Station Circular 134, pp. 11, figs. 6.)

The Cabbage Aphis. By P. J. Parrott and B. B. Fulton. (New York State Station Circular 33, pp. 4, pls. 2, figs. 2.)

The Grape Root-Worm. By F. Z. Hartzell. (New York State Station Circular 41, pp. 6, pls. 2, figs. 4.)

The Control of Insect Pests and Plant Diseases. (New York Cornell Station Bulletin 283, rev. ed., pp. 465-500, figs. 43.)

Some Important Insect Pests of the Greenhouse. By R. D. Whitmarsh. (Ohio Station Circular 154, pp. 93-104, figs. 11.)

The Amount of Arsenic in Solution when Lead Arsenate is Added to Different Spray Solutions. By W. B. Ellett and J. T. Grissom. (Virginia Station Technical Bulletin 8, pp. 160-169.)

## PLANT AND ANIMAL DISEASES.

Report of the Station Botanist, 1914: Chlorosis of Plants with Special Reference to Calico of Tobacco. By G. P. Clinton. (Connecticut State Station Annual Report, 1914, pt. 6, pp. 357-424, pls. 8.)

Facts About So-Called Hog Cholera Cures and Specifics. By C. H. Stange and C. G. Cole. (Iowa Station Circular 25, pp. 6.)

Fusaria of Potatoes. By C. D. Sherbakoff. (New York Cornell Station Memoir 6, pp. 89-270, pls. 7, figs. 51.)

Common Diseases of Poultry. By B. F. Kaupp. (North Carolina Station Bulletin 233, pp. 3-27, figs. 9.)

## INSPECTION AND METEOROLOGY.

Report of Analyses of Commercial Feed Stuffs. (Louisiana Stations Feed Stuffs Report, 1913-14, pp. 152.)

Report of Analyses of Commercial Fertilizers. (Louisiana Stations Fertilizer Report, 1913-14, pp. 122.)

Fungicide and Insecticide Inspection. (Maine Station Official Inspections 68, pp. 29-56.)

Cream and Milk. (Maine Station Official Inspections 69, pp. 57-68.)

Vinegar. (Maine Station Official Inspections 70, pp. 69-80.)

Cream and Milk. (Maine Station Official Inspections 71, pp. 81-100.)

Meteorological Observations at the Massachusetts Agricultural Experiment Station. By J. E. Ostrander and D. Potter. (Massachusetts Station Meteorological Bulletin 320, pp. 4.)

Commercial Fertilizers in 1914-15. By G. S. Fraps. (Texas Station Bulletin 176, pp. 3-25.)

## RURAL ENGINEERING.

Tests of Submerged Orifice Headgates for the Measurement of Irrigation Water. By F. L. Bixby. (New Mexico Station Bulletin 97, pp. 3-56, figs. 11.)

## MISCELLANEOUS.

The Prairie Dog and Its Control. By M. H. Swenk. (Nebraska Station Bulletin 154, pp. 3-33, figs. 3.)

Guide to Buildings and Grounds. (New York State Station Circular 42, pp. 6.)

## COOPERATIVE RELATIONS.

(Continued from page 5.)

Minnesota. The office is also conducting spinning tests of cotton and in this work the New Bedford Textile School in New Bedford, Mass., is assisting.

## STATES RELATIONS SERVICE.

In addition to being a member of the Association of American Agricultural Colleges and Experiment Stations, the units now composing the States Relations Service have taken such an active part and interest in the following organizations that one or more members of its staff have usually been given a place on prominent committees: The Association for the Advancement of Science, Section M of which is devoted to agriculture; the Society for the Promotion of Agricultural Science; the American Association for the Advancement of Agricultural Teaching; the American Association of Farmers' Institute Workers; the National Educational Association; the American Association of Agricultural College Editors; and the American Home Economics Association.

**Atmospheric conditions as related to aviation.**—A series of papers on the movements and physical properties of the atmosphere, designed especially to meet the needs of aviators, is now in process of preparation by the Weather Bureau.

## SELECTED LIST OF ACCESSIONS TO DEPARTMENT LIBRARY.

September, 1915.

### AGRICULTURE AND AGRICULTURAL PRODUCTS.

- Annett, H. E. The experimental error in field trials with sugarcane and the effect on this error of various methods of sampling. 18 p. Calcutta, 1915. (Pusa. Agricultural research institute. Bulletin no. 49) 22 P97 no. 49
- Coimbatore, India. Agricultural college. A notebook of agricultural facts and figures. 178 p. Madras, 1915. 30.3 C66
- Cunningham, J. C., and Lancelot, W. H. Soils and plant life as related to agriculture. 348 p. New York, 1915. 30.2 C91
- Howard, Albert, and Howard, Mrs. G. L. C. 1st-2d reports on the improvement of indigo in Bihar. 2 pts. Calcutta, 1915. (Pusa. Agricultural research institute. Bulletin no. 51, 54) 22 P97 no. 51, 54
- Le Doete, H. P. J. Exposé général de l'agriculture luxembourgeoise. 179 p. Bruxelles, 1849. 33.13 L49
- Massachusetts—State board of agriculture. Grasses and forage crops. 126 p. Boston, 1915. (Massachusetts agriculture. Bulletin no. 3. July 1915. 2d ed.) 2 M38B no. 3
- Nida, W. L. Elementary agriculture. 294 p. Chicago [1915] 30.2 N54
- Radford, W. A., ed. Farm and building guide. 160 p. Chicago, 1915. 296 R11Fa
- Santiago de Chile. Universidad católica. Primera semana social agrícola 3 a 10 de octubre de 1913. 392 p. Santiago de Chile, 1914. 281.2 Sa5
- Taylor, W. E. Soil culture and modern farm methods. Issued by Deere & company. 278 p. Moline, Ill. [1913?] 30 T213
- Thaer, A. D. The principles of agriculture. Tr. by William Shaw and C. W. Johnson. 551 p. New York, 1846. 30 T32P
- Washington (State)—State college—Rural life conference. Report of the 1st rural life conference . . . 1913. Pullman [1913?] 281.2 W27
- Wilkinson, A. E. Sweet corn. 203 p. New York, 1915. 59 W65

### SOILS.

- Howard, Albert, and Howard, Mrs. G. L. C. Soil ventilation. 35 p. Calcutta, 1915. (Pusa. Agricultural research. Bulletin no. 52) 22 P97 no. 52
- Leather, J. W. Soil temperatures. p. [19]-84. Calcutta, 1915. (India. Dept. of agriculture. Memoirs. Chemical series. v. 4, no. 2) 385 In2 v. 4, no. 2

### HORTICULTURE.

- American fruit and produce auction association. What the grower should know. [44] p. [n. p.] 1915. 93 Am33
- Brougham and Vaux, H. C. B., 3d baron. List of roses now in cultivation at Chateau Elconore, Cannes, with descriptive notes. 37 p. London, 1898. 97 B792
- Burnside, F. R. Tea roses and how to grow and exhibit them. 23 p. Hereford, 1893. 97 B93
- Dick, J. H., ed. Commercial carnation culture. 262 p. New York, 1915. 97 D55C
- Lewis, C. L. Choosing an orchard. 24p. [Orenco, 1915] 93 L58
- National carnation and piceote society—Southern section. The carnation manual. 197 p. London, 1892. 97 N214
- New York (State)—Bureau of farmers' institutes. The vegetable industry in New York state. p. 1209-1575. [Albany, 1915] (Dept. of agriculture. Bulletin no. 70) 2 N482 no. 70
- Paul, William. Observations on the cultivation of roses in pots. 8th ed. 88 p. London [1899.] 97 P28O
- Sanders, T. W. Cultivated roses. 157 p. London, 1899. 97 Sa5Cu
- Tavanti, Giuseppe. Trattato teorico-pratico completo sull' ulivo. 2 v. Firenze, 1819. 93 T19
- Weathers, John. Beautiful roses for gardens and greenhouse. 151 p. London [1903] 97 W37B
- White, E. A. The principles of floriculture. 467 p. New York, 1915. 97 W382

### FORESTRY.

- Beschouwkundig tijdschrift Tectona [monthly] jaarg. 8, deel 8, afl. 1-6; Jan.-June 1915. [Buitenzorg] 1915. 59.8 B65

### DOMESTIC ANIMALS.

- Curtis, R. S. The fundamentals of live stock judging and selection. 455 p. Philadelphia, 1915. 40 C942
- Hadley, F. B. The horse in health and disease. 261 p. Philadelphia, 1915. 42 H11
- Harding, A. R. Ferret facts and fancies. 214 p. Columbus, O. [1915] 40 H21
- Hopkins, S. H. Hog-raising in British Columbia. 27 p. Victoria, B. C., 1915. (British Columbia. Dept. of agriculture. Bulletin no. 60) 7 B77 no. 60
- Wright, Lewis. The Brahma fowl. 144 p. London, 1870. 47 W93Br

### VETERINARY MEDICINE.

- Griffith, Fred. A preliminary report on the pathology of bovine actinomycosis. 11 p. London, 1915. (Gt. Brit.—Local government board. Reports . . . on public health and medical subjects. (n. s., no. 107) Food reports, no. 23) 389.47 G794F no. 23

### DAIRYING.

- Leimann, Henry. Analysis of milk and milk products. 4th ed. 115 p. Philadelphia [1915] 44 L52A

### CHEMISTRY AND CHEMICAL TECHNOLOGY.

- Green, A. G. The analysis of dyestuffs. 144 p. London, 1915. 306 G82A
- Henneberg, Wilhelm, and Bode, G. Die gärungsgerbe und ihre naturwissenschaftlichen Grundlagen. 128 p. Leipzig, 1913. 390 H39Ga
- Neuberg, Carl. Die gärungsvorgänge und der zuckerumsatz der zelle. 42 p. Jena, 1913. Sonderausgabe aus dem Handbuch der biochemie, Ergänzungsband, 1913. 386.2 N39IG
- Underwood, Norman, and Sullivan, T. V. The chemistry and technology of printing inks. 139 p. New York, 1915. 306 Un2

### HOME ECONOMICS.

- Fries, Alfred. Amerikanische gerichte (American dishes) 191 p. Chicago [1915] 389.2 F91
- Greer, C. C. A text-book of cooking. 431 p. Boston [1915] 389.2 G86
- Immig, Mrs. Nellie. One hundred and twenty-five recipes, bread, cakes and pies. 124 p. [New York, 1915] 389.25 Im6
- Shepperd, J. L. Laundry work. For use in homes and schools. 116 p. St. Paul, 1909. 321 Sh4L
- Thomas, E. M. Mary at the farm and book of recipes. 440 p. Norristown, Pa., 1915. 389.25 T36
- Webber, C. P. Mutual service. 112 p. [n. p., 1915] 321 W38

### MEDICINE AND HYGIENE.

- Gt. Brit.—Royal commission on tuberculosis. Final report . . . pt. 2. Appendix. v. 7. London, 1915. 448 G791F
- King, Irving. Hygienic conditions in Iowa schools. [40] p. Iowa City, Ia., 1915. (Bulletin of the State university of Iowa. n. s. no. 99. University bulletin no. 1) 449 K59

### PHARMACY.

- Australia—Royal commission on secret drugs, cures, and foods. Report . . . v. 1. [Sydney] 1907.
- British medical association. Secret remedies—what they cost and what they contain. [Also, More secret remedies] 1st and 2d ser. 245 p. [Melbourne, 1912] 396 B778
- Pittenger, P. S. Biochemic drug assay methods, with special reference to the pharmacodynamic standardization of drugs . . . ed. by F. E. Stewart. 158 p. Philadelphia [1914] 396 P68

### MINERALOGY.

- Cobb, Collier. Pocket dictionary of common rocks and rock minerals. 2d ed. 53 p. [Durham, N. C.] 1915. 398 C63

### BOTANY.

- Eriksson, Jakob. Landbruksväxternas svampsjukdomar. 210 p. Stockholm [1910] 464.1 Er4L
- Gates, R. R. The mutation factor in evolution with particular reference to Oenothera. 353 p. London, 1915. 463.6 G22
- Lizer, Carlos. Estudio químico de la mezcla sulfocálcica empleada como insecticida-fungicida. 40 p. Buenos Aires, 1914. 464.4 L76
- Milburn, Thomas. Fungoid diseases of farm and garden crops. 118 p. London, 1915. 464.1 M58
- Rhind, William. A history of the vegetable kingdom. 723 p. Glasgow, 1862. 452.8 R34 1862
- Ross, R. M. The chestnut bark disease in Vermont. 16 p. St. Albans, Vt., 1915. (Vermont. Forest service] Vermont forestry publication no. 16, Jan. 1915) 99.9 V592 no. 16
- Studhalter, R. A., and Ruggles, A. G. Insects as carriers of the chestnut blight fungus. 34 p. Harrisburg, Pa., 1915. (Pennsylvania. Dept. of forestry. Bulletin no. 12) 99.9 P38B no. 12
- Wildeman, Emile de. Prodrome de la flore belge. 3 v. Bruxelles, 1898-1907. 459.4 W64

### BIOLOGY AND ZOOLOGY.

- Butler, A. G. Foreign birds in cage and aviary. 2 v. London [19-?] 413 B972B
- De, M. N. First report on the experiments carried out at Pusa to improve the mulberry silk industry. 30 p. Calcutta, 1915. (Pusa. Agricultural research institute. Bulletin no. 48) 22 P97 no. 48
- Fitzsimons, F. W. The house fly, a slayer of men. 89 p. London, 1915. 428 F38
- Ghosh, C. C. Bee-keeping. 87 p. Calcutta, 1915. (Pusa. Agricultural research institute. Bulletin no. 46) 22 P97 no. 46
- Hardy, G. H. The book of the fly. 124 p. London [1915] 428 H223
- Mellen, Eleanor. Practical methods for attracting wild birds. 19 p. Bedford, Mass. [1915] 413 M48

- Morgan, T. H., and Sturtevant, A. H. [etc.] The mechanism of Mendelian heredity. 256 p. New York, 1915. 443 M82M
- Phillips, E. F. Beekeeping. 457 p. New York, 1915. 424 P53B

### ECONOMICS.

- King, W. I. The wealth and income of the people of the United States. 278 p. New York, 1915. 284 K58
- Metcalf, Ralph, and Black, C. G. Rural credit, cooperation and agricultural organization in Europe. Report. 293 p. Olympia, Wash., 1915. 284.2 M56
- Nearing, Scott. Income. 238 p. New York, 1915. 284 N27
- Nichols, H. W. A method of determining costs in a cotton mill. 115 p. New Bedford, 1915. 304 N51
- Shaw, A. W. Some problems in market distribution. 119 p. Cambridge, 1915. 280.2 Sh2

### ENGINEERING.

- Talbot, A. N., and Lord, A. R. Tests of columns. 44 p. Urbana, 1912. (Bulletin no. 56 . . . University of Illinois. Engineering experiment station) 259 T14

### MANUFACTURES.

- De, M. N. How to improve silk-reeling in Bengal. 19 p. Calcutta, 1915. (Pusa. Agricultural research institute. Bulletin no. 44) 22 P97 no. 44

### EDUCATION.

- Bancroft, J. II. Games for the playground, home, school and gymnasium. 456 p. New York, 1915. 289.6 B22
- Goll, H. L. Farm and school problems for high schools and normals. 538 p. Columbus, 1915. 30.2 G58
- Parker, S. C. Methods of teaching in high schools. 529 p. [Boston 1915] 275 P22

### REFERENCE BOOKS AND BIBLIOGRAPHY.

- Clegg, James. The international directory of hook-sellers and bibliophile's manual. 644 p. Rochdale, 1914. 239 C53
- Kentucky—Library commission. Good books on agriculture, forestry, roads. 18 p. Frankfort [1915] 241 K41
- MacDonald, G. R. Spanish-English and English-Spanish commercial dictionary. 644 p. London [1915] 204 M14
- Martinez, A. B. Baedeker of the Argentine Republic . . . 4th ed. 479p. Barcelona, 1914. 125 M362
- The new international year book . . . 1914. New York, 1915. 220 InSN

### ADDITIONS TO LIST OF PERIODICALS CURRENTLY RECEIVED.

- La Agricultura; revista mensual ilustrada. Lima, Peru.
- American school master [monthly except July-Aug.] Ypsilanti, Mich.]
- Cleveland engineering society. Journal [bi-monthly] Cleveland, O.
- Cotton seed oil magazine [monthly] Dalton, Ga.
- Deutscher landwirtschaftsrat. Wochenbericht der preisberichtsstelle. Berlin.
- Farmer's magazine [monthly] Toronto.
- Federal trade reporter [semi-monthly] Chicago.
- Lumbermen's bureau. Hardwood [monthly] [Washington, D. C.]
- Lumbermen's bureau. North Carolina pine; market report [monthly] [Washington, D. C.]
- Lumbermen's bureau. Yellow pine [monthly] Washington, D. C.]
- Mountain states farm and livestock journal [monthly] Salt Lake City, Utah.
- Mutual insurance journal of Pennsylvania [monthly] Lebanon, Penn.
- National fire protection association. Quarterly. Boston, Mass.
- Virginia—Agricultural experiment station, Blacksburg. Technical bulletin. Blacksburg.
- Wells Fargo messenger [monthly] [New York]

## REGION OF GREATEST SNOWFALL.

A total snowfall of 783 inches has been recorded in a single winter at Summit, Cal., while as much as 307 inches has been on the ground at one time at the same station. As this snow furnishes most of the water used in irrigation, hydraulic mining, and other phases of engineering, the question of snow depth is of much importance in forecasting the amount of water available for such purposes.