

crowded out. To restore a proper balance of legumes and stimulate the growth of the grass, such a pasture should be plowed in the late winter or early spring and seeded to lespedeza. In plowing the furrow, slices ought to be left on edge as much as possible. In this way the grass will begin growth along the edge of each furrow and quickly restore the turf. Before seeding to lespedeza the plowing should be disked and harrowed. Seeding on this 12 to 16 pounds of lespedeza seed per acre in early spring will provide grazing for the animals during the summer while the Bermuda grass is reestablishing itself. A pasture renovated in this way may be improved still further by seeding 3 to 4 pounds per acre of white clover, hop clover, or black medic in the fall or early winter following the spring plowing.

Experiment Farm Results

Some striking results have been obtained in grazing Bermuda-grass pastures on the Iberia Livestock Experiment Farm. In 1927 a 25-acre pasture was grazed with 30 steers and 5 head of horses and mules. During August the steers made an average daily gain of over 2 pounds per head. In 1928 a mixed lot of cows and calves showed an average daily gain of 1 to 1.35 pounds per head. Two-year-old heifers gained 1.35 pounds and yearling heifers 0.85 pound daily. Such results are indicative of what may be expected of Bermuda-grass pastures when they are properly managed. Frequent use of the mowing machine keeps these pastures on the Iberia Livestock Experiment Farm in vigorous productive condition, and no difficulty is ever experienced in getting the animals to eat the grass.

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BIBLIOGRAPHICAL Aids to the Use of Recent Agricultural Bulletins A full and complete list of even the current sources of information regarding new publications on agriculture and the related sciences is obviously quite beyond the scope of a brief article, but it may be of some service to call attention to a few of the current bibliographical aids issued by the United States Department of Agriculture and other Government departments which contain references to these subjects. First in importance is the Experiment Station Record, issued by the Office of Experiment Stations of the United States Department of Agriculture. This is an abstract journal covering both American and foreign literature on the following subjects: Agricultural and biological chemistry, meteorology, soils and fertilizers, agriculture and botany, genetics, field crops, horticulture, forestry, diseases of plants, economic zoology and entomology, animal production, dairying, veterinary medicine, agricultural engineering, rural economics and sociology, foods and human nutrition. Two volumes a year are published. It is an invaluable bibliographical aid for all research workers in the subjects covered. Another recent valuable bibliographical aid issued by the Office of Experiment Stations is the List of Bulletins of Agricultural Experiment Stations in the United States from their Establishment to the End of 1920, which is United States Department of Agriculture Bulletin 1199-D. There have been three biennial supplements to this list, the last one covering the years 1925 and 1926. The fourth, covering

the years 1927 and 1928, is in preparation. The main list and the first supplement are merely check lists, but the second and third supplements contain both author and subject indexes.

Various Lists of Publications

Among other bibliographical aids issued by the Department of Agriculture mention should perhaps be made first of a List of Publications of the United States Department of Agriculture from January, 1901, to December, 1925, Inclusive, which was issued as Miscellaneous Publication No. 9-M of the department. This lists the publications chronologically by the various series. A combined index to Farmers' Bulletins Nos. 1 to 1000 was issued by the Division of Publications of the department in 1920. This index is now out of print. Leaflets giving lists of available Farmers' Bulletins, arranged numerically and by subject, can always be obtained on request from the Department of Agriculture. The Office of Information of the department issued in 1927 a handy list of all the available Publications of the United States Department of Agriculture. The former monthly list of publications of the department was discontinued some years ago. Announcements of new publications are now sent out in post-card form. A list of new publications of the department is also contained in The Official Record, the weekly organ of the Department of Agriculture. The Official Record contains in addition other bibliographical lists—namely, lists of new State experiment station publications, lists of articles and written addresses by department people issued in publications outside of the department, and finally, the list of principal library accessions received each week by the library of the department. While The Official Record is distributed free only to department workers and persons cooperating with the department, it is possible to subscribe for it from the Superintendent of Documents, Government Printing Office, at 50 cents a year.

Various price lists of agricultural publications are issued by the Superintendent of Documents, Government Printing Office. Among the subject lists of Government documents which that office keeps regularly in print, the following numbers are of particular interest to agricultural workers: 11, Foods and Cooking; 16, Farmers' Bulletins, Department Bulletins, Circulars, Agricultural Yearbooks, Statistical Bulletins, Leaflets, and Technical Bulletins; 38, Animal Industry; 39, Birds and Wild Animals; 41, Insects; 42, Irrigation, Drainage, and Water Power; 43, Forestry; 44, Plants; 45, Roads; 46, Agricultural Chemistry and Soils and Fertilizers; 48, Weather, Astronomy, and Meteorology; and 68, Farm Management. Copies of these various lists are sent free on application. Information in regard to the new publications of all the Government offices, as issued, is contained in the Monthly Catalogue, United States Public Documents, issued by the Superintendent of Documents. Since July that office has also been issuing a brief Weekly List of Selected Government Publications, the publications being grouped by subject in the alphabetical order of the subjects. Two other series issued by the Office of the Superintendent of Documents which are of great value and importance for reference purposes in libraries are, first, the Catalogue of Public Documents, of which 14 large, bound volumes have thus far been issued, covering the period from March 4, 1893, to June 30, 1919, and second, the Document Index, which lists the documents and reports issued by direct order of Congress.

State Publications Listed

State publications are listed currently in the Monthly Catalogue of State Publications, which has been issued by the Library of Congress since 1910. The publications are listed in each monthly issue by States only, but there is a subject and author index in each yearly volume.

Though a list of quite a different character, it may be of interest to mention here a 16-page leaflet issued by the Bureau of Education, Department of the Interior, entitled "Agriculture and Country Life, a Reading Course on the Problems of the Farmer." This leaflet is a helpful annotated list of 57 recent books on the various branches of agriculture.

Supplementing the printed lists which have been mentioned are various mimeographed lists issued by the library of the Department of Agriculture and its branches. A brief description of these follows: Agricultural Economics Literature, a monthly publication issued by the library of the Bureau of Agricultural Economics, contains reviews of important articles and books on agricultural economics as well as abstracts, notes of new publications, etc. It is described in more detail in another article in this issue of the Yearbook, on page 266. Agronomy Current Literature and Botany Current Literature, prepared in the library of the Bureau of Plant Industry, list the periodical articles on agronomy and botany appearing in current periodicals and bulletins and also some of the more important new books on these subjects. These lists are issued every two weeks. As the entries in both of these lists are printed on one side of the sheet, some workers make a practice of cutting up the sheets and mounting on cards the references of especial interest in their own work. Highways and Agricultural Engineering Current Literature, issued each week by the Bureau of Public Roads Library, lists the periodical articles and bulletins on the subject of highways and engineering. The library of the Forest Service issues every two months a list of current literature on forestry indexed in the Forest Service Library. The library of the Bureau of Entomology includes in each number of the Monthly Letter of the Bureau of Entomology the new books and bulletins on entomology. The Office of Cooperative Extension Work issues a monthly mimeographed list of new agricultural extension publications of the various States and the Office of Experiment Stations issues a monthly list of the State experiment station publications. The library of the department issues a monthly mimeographed publication entitled "Agricultural Library Notes," regular features of which are notes on some of the new and more popular agricultural books received by the library and lists of the new mimeographed publications of the department. Notes of bibliographies are also included.

Two Series of Bibliographies

In addition to these various mimeographed lists of current material, mention should also be made of two series of mimeographed bibliographies—namely, Bibliographical Contributions of the Library of the United States Department of Agriculture, and Agricultural Economics Bibliographies, issued by the Bureau of Agricultural Economics. The three most recent numbers in the series of Bibliographical Contributions are No. 17, Bibliography on Ice Cream up to and Including the

Year 1926, prepared in the Bureau of Dairy Industry Library; No. 18, Agricultural and Home Economics Extension in the United States, a Selected List of References, prepared in the Office of Experiment Stations Library; and No. 19, Cattle, Sheep, and Goat Production in the Range Country, prepared in the library of the department. The latest number in the series of Agricultural Economics Bibliographies is No. 25, Taxation and the Farmer; a Selected and Annotated Bibliography. Full lists of both series can be obtained on application to the librarian of the Department of Agriculture.

In conclusion it seems desirable to refer to one other bibliographical publication (which is not a Government publication) inasmuch as its particular field is agriculture—namely the Agricultural Index. This has been published since 1916. It indexes not only United States Government and State publications on agriculture, but also the publications of various agricultural organizations and a select list of approximately 120 periodicals. Nine numbers are issued each year. At the end of the year an annual bound volume is issued. Every three years the annual volumes are cumulated into a single volume.

The investigator and librarian having occasion to use agricultural literature will find it helpful to be familiar with the various bibliographical aids which have been mentioned.

CLARIBEL R. BARNETT.

BIRD Refuges Play Indispensable Part in Saving Wild Life

In utilizing native wild life for food and pleasure and in occupying for his own purposes lands and waters necessary for its maintenance, man has reduced the numbers of almost all species of native birds and mammals, and some he has exterminated. Corrective measures were at first taken by the enactment of protective laws, but long ago it became apparent that mere protection is insufficient to perpetuate the various species. To provide sanctuaries where certain wild mammals and birds may propagate, feed, and rest without molestation is fully as important as are other conservation measures.

Refuge areas are being established by the Federal Government, by the several States, by conservation organizations, and by private individuals, and so great is the need for such resorts that there is a large field of work for all agencies. The Federal Government has created refuges on suitable public lands from the Arctic to Porto Rico and from the Atlantic coast to the Hawaiian Islands. At present there are approximately 80 of these administered by the Bureau of Biological Survey to accommodate to some degree practically all the important species of birds and many of the valuable mammals found in North America. Congress also has enacted suitable legislation for the protection of animals and property on Federal reservations. Furthermore, to fulfill its obligations under treaty with Great Britain Congress passed the migratory-bird treaty act in 1918, and now it is generally conceded that the migratory birds that regularly cross the boundary between Canada and the United States are proper subjects for special protection by the Federal Government. On February 18, 1929, President Coolidge approved the migratory-bird conservation act, which authorizes Federal appropriations for the establishment of large areas throughout the entire country to be maintained as inviolate sanctuaries—feeding, nesting, and resting grounds where