Agriculture, according to Science Service, has been placed at the head of a scientific mission at the request of the Chinese Government. Dr. T. Dykstra, plant breeder in corn and potatoes, is accompanying Dr. Lowdermilk, and later an animal breeder and hydraulic engineers will join them in Chungking. The need for food in China has been increased by the 60,000,000 refugees who fled inland as a result of the Japanese invasion. Cultivation was pushed up the slopes of the hills and mountains. Crops such as potatoes and corn were more generally grown. Dr. Lowdermilk and his colleagues will cooperate in setting up a soil conservation service which will be a permanent organization for the purpose of assuring ample food production in coming years. The group will work closely with Dr. D. Y. Lin, of the Chinese Ministry of Agriculture in Chungking.

THE Research Council on Problems of Alcohol, an associated society of the American Association for the Advancement of Science, will meet at one o'clock on Monday, September 28, in the Commodore Hotel, New York.

THE annual meeting of the New York State Geographical Association, which had been planned for Oswego on November 7, has been cancelled.

DR. ROBERT H. SEASHORE, chairman of the Public Relations Committee of the American Psychological Association, writes: "It may be of interest to other societies to note that due to the increase of defense transportation, the regular five-day meetings of the association scheduled for the same week at Harvard University were cancelled and a skeleton one-day business meeting was held in New York City in order to conserve transportation facilities. Since the reduced meeting had an attendance of only ten per cent., as compared with normal meetings, it can be seen that there was a very great saving in transportation. A similar skeleton meeting to administer the business officers of the association will be held in Chicago during the first week in September of next year unless other emergencies interfere. The association is continuing its Office of Psychological Personnel under the auspices of the National Research Council in order to facilitate the placement of psychologists in various military and other governmental offices."

IT is reported that at a special meeting in Chicago on September 17, the American Medical Association decided to cancel its next annual meeting. In place of this meeting, which is usually attended by from 6,000 to 10,000 physicians, the house of delegates, the board of trustees, the scientific councils and officers will meet in Chicago next June to deal with the essential business of the association and the war-time problems of the medical profession. Cancellation of the meeting, which had been scheduled for San Francisco next June, marks the first time since the Civil War that the association has postponed one of its annual sessions. The trustees, it is reported, also took into account the strain that such a large delegation in San Francisco would place on war-burdened transportation facilities.

THE council of the Royal Horticultural Society reports that for its general senior examination held in prisoner of war camps in Germany it has received the papers from nine candidates, and that five of these candidates have passed the examination.

DISCUSSION

THE NEW YORK MATHEMATICS TABLES PROJECT

MATHEMATICIANS and many other scientific workers can become enthusiastic over certain expenditures by the Government's Work Projects Administration (WPA) which have led to the publication and calculation of many important mathematical tables, sold very cheaply when published. The large bound volume of "Natural Sines and Cosines to Eight Decimal Places," for every second of arc, recently issued as Special Publication No. 231 of the U. S. Coast and Geodetic Survey ($1.75), was prepared in 1941–42 as a WPA project at Philadelphia, under the sponsorship of the Survey. The personnel of this Philadelphia group was also mainly responsible for the 8 large volumes of tables ($2.25 each) in Hydrographic Office, Publication No. 214, 1941, "Tables of Computed Altitude and Azimuth, Latitudes 0° to 79° Inclusive." Their other work was much less mathematical. But during the past four and one-half years the Mathematical Tables Project of the WPA in New York City has achieved an extraordinary body of calculation and publication. A somewhat detailed account of this would seem to be timely and likely to interest many people. It is hoped that such publicity may contribute to action serving to make the project's activities still more potent. Further reference to such action is made towards the close of this article.

The actual organization of the New York Project began in January, 1938, under the sponsorship of Dr. Lyman J. Briggs, director of the U. S. Bureau of Standards, who determines the Project's policies and activities, and oversees the distribution of its publications. It is indeed fortunate that representations to

the government on behalf of the Project should be made by a man of such eminence, fully conversant with the scientific implications of all that the Project undertakes. The technical supervision of the Project was placed in the hands of Dr. Arnold N. Lowan, who has not only served the Project with notable ability, but has also in various ways assisted many inquiring scientists with very useful information.

Those setting up the Project were given detailed instructions as to the persons whom they might employ. It was not long before a large corps of computers and computing machines had been assembled, and the demands for new tables were constantly increasing.

In that extraordinary laboratory at 70 Columbus Avenue in New York City, there are now 250 computers working in two shifts from 9:00 o'clock A.M. to 5:00 P.M., and from 5:00 P.M. till midnight, on five days of the week. The two shifts were necessary in order fully to utilize the following 150 machines: A Burroughs Comptometer, 27 Friden Calculators (10 banks), 8 Marchant Calculators (10 banks), 6 Monroe Calculators (8 banks), 59 Monroe Calculators (10 banks), 4 Remington Adding Machines and 45 Sunstrand Adding Machines. Until recently the following 19 machines of the International Business Machines Corporation were also in use; 1 type 405 Alphabetic Accounting Machine; 5 type 601 Automatic Multiplying Machines; 2 type 077 Collators; 3 type 80 Horizontal Sorters; 6 type 15 Motor Drive Punch Machines; 1 type 5B Automatic Reproducing Punch and 1 type 513 Reproducing Summary Punch. Surely never before has such an extensive scientific computing laboratory been established. It is kept working to fullest capacity by confidential demands of the Army and Navy, and by many approved requests of scientists. Brief indications may be given of *A*. Tables already published; *B*. Tables in process of reproduction; *C*. Tables for which manuscripts are completed; *D*. Tables for which computations are completed; and *E*. Tables for which computations are in progress.

A. The following 12 large volumes (8½ x 11 ins.), strongly bound in buckram, are sold at two dollars each:

1. Tables of the Exponential Function e^x, 1939, 535 p.
2. Tables of Sines and Cosines for Radian Arguments, 1940, 275 p.
3. Tables of Circular and Hyperbolic Sines and Cosines for Radian Arguments, 1940, 405 p.

4–5. Tables of Probability Functions $\frac{2}{\sqrt{\pi}}e^{-x^2}$, $\frac{1}{\sqrt{2\pi}}e^{-x2/2}$, $\frac{2}{\sqrt{\pi}}\int_0^x e^{-t2}dt$, $\frac{1}{\sqrt{2\pi}}\int_{-x}^x e^{-t2/2}dt$, 2v., 1941–42, 696 p.

6–8. Tables of Sine, Cosine, and Exponential Integrals, 1940–42, 3v., 673 p.

9–12. Table of Natural Logarithms, 4v., 1941–42, 2009 p.

There are also (among others)

13. Table of the first ten Powers of Integers from 1 to 1000, 1939, 80 p. ($8\frac{1}{2} \times 13\frac{1}{4}$ ins.)

and the important

14. Table of Lagrangean Interpolation Coefficients, prepared for the Ordnance Department in June, 1941, 50 p. ($8 \times 10\frac{1}{2}$ ins.), but only recently released for more general distribution by Dr. Briggs.

B. Among tables in process of reproduction are:

1. Table of the Electronic Functions $G = 1/(1-\beta^2)^{\frac{1}{2}}$, $v = (m_0c^2/e)(G-1)$ and $H\rho = [(m_0c)/e](B_G)$;
2. Table of Arctan x;
3. Table of the Bessel Functions $J_0(z)$ and $J_1(z)$ for Complex Arguments $z = \rho e^{i\phi}$;
4. Miscellaneous Hydraulic Tables.

C. Manuscripts have been completed for the following tables:

1. Table of the Associated Legendre Functions $P_n^m(x)$ and $Q_n^m(x)$, for arguments x and ix;
2. Table of fractional powers a^x and x^a;
3. Table of $\int_0^x J_0(t)\,dt$ and $\int_0^x Y_0(t)\,dt$;
4. Tables of Tan x, Tanh x, Cot x and Coth x [0(.0001)2];
5. Tables of the Definite Integrals

$$A(k, n) = \int_0^1 x^k \sin(n\pi x)\,dx, \quad B(k, n) = \int_0^1 x^k \cos(n\pi x)\,dx, \quad k = 0, 1, 2 \cdots; \quad n = 1, 2 \cdots, 100;$$

D. There are also three important tables for which computations are completed:

1. Table of the Bessel Functions $J_\nu(x)$ and $I_\nu(x)$;
2. Table of $Q_n(x) = \sqrt{\frac{\pi}{2x}}\,J_{n+\frac{1}{2}}(x)$;
3. Table of Reciprocals of the integers from 100,000 to 200,000.

E. Then there are the following six equally important tables for which computations are in progress:

1. Table of Bessel Functions $Y_0(z)$ and $Y_1(z)$ for complex arguments;
2. Tables of Lagrangean Interpolants, Orders three to eleven;
3. Tables of the Complete Elliptic Integrals K of the First Kind, the Nome $q = \exp(-\pi K'/K)$, and the Elliptic Functions am u, sn u, cn u, dn u, for real and imaginary arguments;
4. Tables of the Chebyshev Polynomials $C_n(x)$ and $S_n(x)$, $n = 1, 2, \cdots, 12$;
5. Table of the first ten Powers of the Reciprocals of the Integers from 1 to 1000;
6. Table of Inverse Circular and Hyperbolic Functions other than arctan x (see B.2).

Scientists must regard the calculation of even such a body of important tables as an extraordinarily impressive achievement, for the time that the Project has been in existence. But appreciably more has been done than is here suggested, since no listing of con-

fidential tables for the Army and Navy is permitted. Furthermore, the preparation of all such tables was begun by Dr. Briggs after having in consultation with many experts verified their great value in pursuits of scientific research. The endless requirements of the war effort have only intensified the demand for these and for many other tables. Yet what do we find in connection with the present organization of the Project? It may be years before these 12 completed tables listed in B, C and D are published.

Surely, then, there is here vital need for action, to the end that means be sought for the rapid publication, not only of all the above-mentioned tables, but also of all later tables completed by the Project. There must be many mathematicians and mathematical physicists, who would be willing to join with me in most earnestly commending this matter to the attention of Dr. Briggs.

RAYMOND CLARE ARCHIBALD
BROWN UNIVERSITY,
August, 1942.

STANDARDIZED PLANT NAMES

THE second edition of this work has recently appeared and has been given several brief favorable reviews by individuals who apparently have not gone over it critically from the botanical standpoint. Originally prepared for standardizing Latin and common names for nurserymen and horticulturists the Latin names printed in bold face in the first edition were sometimes compromise names that followed no recognized botanical code, but were followed by the code name in italics, lest too many changes from nursery use would not be acceptable. The result was that these names were not acceptable to botanists and the principal author did not use them in his official publications. The Latin names in the new edition conform, with but very few errors, to the now generally recognized International Botanical Code and under any code occasional changes in names will occur as types are studied and botanists and horticulturists will always have differences of opinion as to the limits of species and genera.

Nurserymen had reason to believe that at least the common names in the first edition would become fairly permanent, yet the present authors have indulged in changes of many common names that would compare well with the vagaries of the most extreme taxonomists and produced many caconyms that will be acceptable neither to botanists nor horticulturists. Common names are fixed by local usage, though not always consistently, and the best of the common names recognized by the standard manuals of botany will continue to be used in future editions and by the far greater number of manual users.

While it has been impossible to make a complete list of exceptions they mostly fall into two groups, *viz.*: two-word combinations of illogical common names and two-word combinations of a common and a Latin name that are exceedingly offensive to most botanists and other users of plant names. Thus far over 100 such names have been discovered in the new edition and additions are turning up frequently. A few examples will suffice.

Page	Edition I.	Page	Edition II.
	Group I		
19	Dragonroot	22	Dragonroot Jackinthepulpit
158	Wintergreen	271	Checkerberry Wintergreen
267	Common toadflax	301	Butter-and-eggs Toadflax
285	Muskplant	301	Muskplant Monkeyflower
388	Kudzu-bean	505	Thunberg Kudzubean
	Group II		
60	Nickernut	78	Nickernut Caesalpinia
91	Leatherflower	131	Leatherflower Clematis
185	Farewell-to-spring	276	Farewell-to-spring Godetia
255	Mountain-laurel	319	Mountainlaurel Kalmia
283	Cucumber-root	382	Cucumberroot Medeola

Other long-accepted common names are changed in one word form. Faunlily is applied to the whole genus *Erythronium,* though Troutlily was previously used. It is illogical to apply the prefix Fawn to the species that are white and purple. The western white species is usually called Glacier or Avalanche lily. *Trillium grandiflorum,* commonly called large-flowered Trillium, is erroneously called Snow Trillium, as in the first edition. *Trillium niveum* (niveum meaning snow) is correctly the Snow Trillium. California poppy is changed to Goldpoppy. Bluebonnet is applied to *Lupinus texensis* and Texas lupine to *Lupinus subcarnosus.* These common names should be reversed, as Bluebonnet is officially applied to *Lupinus subcarnosus* in its legal designation as the state flower, but the lay element does not distinguish the species and applies Bluebonnet to both, though perhaps *L. texensis* is the more abundant of the two. Oregon Hollygrape is changed back to Oregongrape.

The use of hyphens is largely, though often illogically, eliminated, but Butter-and-eggs and Farewell-to-spring would also suggest the preferable use of Jack-in-the-pulpit instead of Jackinthepulpit.

The District of Columbia floral emblem, American Beauty Rose, adopted by the Commissioners in 1925, is omitted on page 596 and the dates of official designation of the floral emblem of 15 states are omitted.

A summary of all the items listed shows that of its 675 pages, 73 pages or about 10.8 per cent. have at least 151 omissions or items to which exception will be taken by most botanists, and these do not begin to represent all the additional exceptions found or likely to be found by other botanists. Forty-four of the pages have only one item each, 11–2, 7–3, 3–4, 2–5,