the Bureau of Soils, United States Department of Agriculture. The Macmillan Company, New York. 1920. Pp. xviii + 399. Illustrations: 56 plates, general soil map of the Southern States (frontispiece), and four additional maps.

This book departs from the usual trend of books on soils in that instead of dealing with the properties and nature of soils in general the author describes the origin, geographic distribution, physical characteristics, agricultural adaptations and management of all the important soils occuring in the area under discussion. The states included in the work are those lying south of the north boundaries of Delaware, Maryland and West Virginia, south of the Ohio River, and south and east of and including Missouri, Kansas and Texas.

In the introduction the author explains the division of the country under consideration into soil provinces and subordinate soil regions, and describes the United States Bureau of Soils system of classification and nomenclature of soil series and types. The introduction further takes up the geographical distribution and in general the adaptation to different soils of the various crops grown in the South; and the influence of climate on soils and crops.

The general geography, topography, geology and agriculture of each soil province and its subordinate soil regions are discussed, followed by detailed descriptions of the individual soils. These descriptions include the location, physical and frequently chemical characteristics, topography, drainage and crop adaptation of each soil, and methods of soil management and fertilization which actual farm practise and experimentation have proven to be most effective.

Four appendixes include discussions of the meanings of terms used in soil classification, chemical analyses of representative southern soils, a bibliography of important publications on soils and related subjects, and statistics bearing on some of the important farm products of the southern states.

The book is valuable not only to students and agricultural investigators but also to farmers and especially to those contemplating settling in the south.

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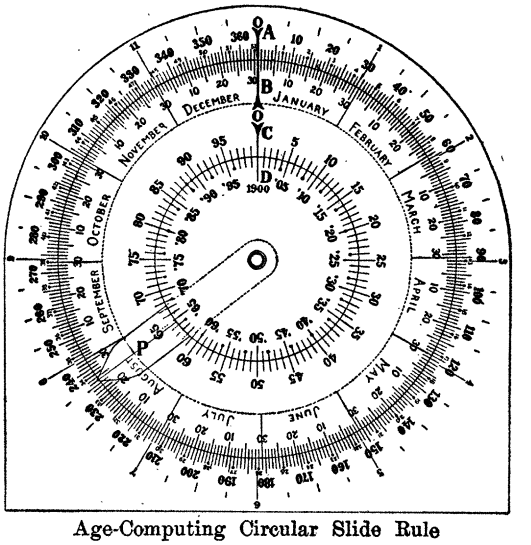
SPECIAL ARTICLES

AN AGE-COMPUTING DEVICE

1. In a recent issue of Science (1920, No. 1336, pp. 134–135), Dr. Slonaker describes a device for the simultaneous determination of the ages of two individuals at different times in their lives, involving the use of a calendar in which the days are numbered consecutively throughout the year. The present device obviates the need of the calendar and the need for resetting for dates in different years. As used with reference to human beings, two accessory scales aid in determining in years the age of an individual at different episodes in his life, when his present age and the years in which the episodes occurred are known, and vice versa.



Age-Computing Circular Slide Rule

2. A small disk 2 inches in diameter, a larger disk 3½ inches in diameter, and a 4¼-inch square are cut from a sheet of opaque white celluloid and, with thin washers intervening, are pivoted at their centers on an eyelet. The square is cut further to present a semi-circular border from one end of the transverse diameter to the other. An adjust-

able pointer (P), bearing a median hair line throughout its length, is placed between the two disks and consists of a strip of transparent celluloid pivoted at one end on the eyelet and extending with a sharply pointed tip to the periphery of the larger disk.

3. Scale A, marked on the acircular sheet exetrnal to the circumference of the larger disk, is comprised of 365 equidistant radial lines numbered by tens from 0 (index a) to 360, representing successive days. Every seventh line if accented by a dot and numbered serially from 0 (index a) to 52, indicating weeks. An outer scale divides the circumference into twelve equal parts, each in turn divided into fourths, and is numbered from 0 to 11 to indicate months.

4. A coinciding scale (B) extends along the circumference of the larger disk but is graduated by months, the last line of each being prolonged centrally and the intervening spaces labelled with the names of the corresponding months. The index (b) of this scale is an accentuated line representing December 31.

5. An inner scale (C) on the same disk lies around the circumference of the smaller disk and, with 0 (index c) on the same radius as index b, divides the circumference into 100 equal parts. The lines are numbered by fives from 0 to 95 and represent successive years.

6. Individual years are represented by scale D on the smaller disk. This scale coincides with scale C and is numbered from '05 to 1900 (equivalent to any even hundred year). Attention is called to leap years by a dot on every fourth line from that of '04 to that of '98, inclusive. An erasable mark accentuates the present year.

ILLUSTRATIONS OF THE USE OF THE CIRCULAR SLIDE RULE

(a) To determine the interval between two dates less than 365 days apart. (The order in which the steps are taken is indicated by the numbers in the schematic diagrams.)

Scale A.		(3) At P, read the number of days (weeks or months).
Scale B.	(1) Set P at later date.	(2) At index a, set earlier date.

Example: Find the interval between May 21 and November 3.

Scale A.		(3) At P, read 166 days (23 weeks, 5 days, or 5 mos., 14 days).[1]
Scale B.	(1) Set P at November 3.	(2) At index a, set May 21.

In a leap year, if February 29 falls within the interval determined, 1 is to be added to the number of days indicated at P. This result is best obtained by advancing P one day in step (1), as follows:

Example: For the interval from July 5, 1919, to March 13, 1920.

Scale A.		(3) At P, read 252 days (or 8 mos., 9 days).
Scale B.	(1) Set P at March 14 (March 13 + 1).	(2) At index a, set July 5.

(b) To find the age on September 17, 1920, of an individual born March 23, 1867 (if the entire process were to be carried out):

[1] Although the reading in total days is invariably accurate (not considering leap year), readings in months and days may deviate from the customary calculation by not more than 3 days (because of the inequality of the calendar months). After the number of whole months is read, the number of days in the remainder may be determined accurately by rotating scale B, carrying P (already set at the later date) in the clockwise direction past index a until the first day represented by the same figure as the earlier date is at index a. Then, at P on scale A, read the number of days in the remainder. Thus, in the same example (from May 21 to November 3):

Scale A.		(3) At P, read 5 months.	(5) At P, read 13 days.
Scale B.	(1) Set P at November 3.	(2) At index a, set May 21.	(4) At index a, set October 21.

Scale *A*.			(6) At *P*, read 5 mos. 26 days.	(8) At *P*, read 25 days.
Scale *B*.	(2) Set *P* at Sept. 17	(3) At index *a* set Mar. 23.		(7) At index *a* set Aug. 23.
Scale *C*.			(5) Read 53 years.	
Scale *D*.	(1) Set '67 at index *c*.		(4) Opposite '20.	

In this example, since the earlier date (March 23) precedes the later date (September 17) within the same calendar year, *P* in step (6) lies within the sector extending clockwise from index *a* to index *b*. If the *later* date precedes the *earlier* date on scale *B*, *P* lies outside the sector similarly formed, and 1 must be subtracted from the number of years indicated in step (5). Thus, in the following example—an unusual case involving all the steps heretofore described—

Example: What is the age on March 3, 1920, of an individual born July 16, 1873?

Scale *A*.			(6) At *P*, read 7 mos. 19 days.	(8) At *P*, read 16 days.
Scale *B*.	(2) Set *P* at Mar. 4.	(3) At index *a* set July 16.		(7) At index *a* set Feb. 16.
Scale *C*.			(5) Read 47–1, or 46 years.	
Scale *D*.	(1) Set '73 at index *c*.		(4) Opposite '20.	

In step (3) it is seen that *P* lies outside the sector extending clockwise from index *a* to index *b* and accordingly 1 is subtracted from the reading in step (5). In step (2), correction is made for the occurrence of February 29 in the interval, and by steps (7) and (8) is obtained the correct reading of days in the remainder of the reading in months (step 6). The age, then, is found to be 46 years, 7 months, 16 days.

(*c*) To determine the period of liability in industrial insurance:

A new index (*a'*) may be marked on scale *A* at a point representing, in the counter-clockwise direction from index *a*, the number of days in the legal interval between the date of injury and the first day of compensation. For example, in Massachusetts, where compensation starts on the 15th day of incapacity, index *a'* is marked at 351. With the day of injury (scale *B*) set at index *a'*, the number of days of compensation may be read directly on scale *A* at the day on scale *B* representing the date of termination of disability.

Example: For what number of days shall compensation be paid to an employee injured on April 9 and incapacitated until August 5?

Scale *A*.		(3) At *P*, read 104 days (or 14 weeks, 6 days).
Scale *B*.	(1) Set *P* at Aug. 5.	(2) At index *a'* (351), set April 9.

(*d*) To find the decimal fraction of a year equivalent to a given number of days.

Example: What per cent. of a year is an interval of 211 days?

Scale *A*.		(2) Set *P* at 211.
Scale *B*.	(1) Set index *b* at index *a*.	
Scale *C*.		(3) At *P*, read 58 per cent.

Or, to find the number of days equivalent to a decimal fraction of a year:

Example: What is the equivalent in days of .36 year?

Scale *A*.		(3) At *P*, read 131 days.
Scale *B*.	(1) Set index *b* at index *a*.	
Scale *C*.		(2) Set *P* at 36.

7. The device may, of course, be made in any desired size but the dimensions given seem the most convenient, and the acircular shape of the base facilitates locating index *a*. Indelibility is obtained by engraving the lines with a steel point and filling with India ink.

8. Illustrations of the use of this compound circular slide rule are given above.

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MEETING OF COMMITTEES ON CONSERVATION

COMMITTEES on Conservation appointed by the National Academy of Sciences, the National Research Council, and the American Association for the Advancement of Science met jointly in the American Museum of Natural History, New York City, April 9, to consider the present status of the conservation movement from the point of view of science, means for increasing the coordination of the numerous agencies interested in the various aspects of conservation, and particularly the far-reaching relation of the principles of the conservation of natural resources to the economic and social welfare of the country. The members present at this meeting were: J. C. Merriam, chairman of three committees, Isaiah Bowman, J. McK. Cattell, John M. Clarke, Henry S. Graves, Vernon Kellogg, C. E. McClung, and Barrington Moore, and by invitation Willard G. Van Name.

The point of view of the committees and the major considerations discussed at this meeting are stated in an address which Mr. Graves presented at this meeting and which is published in full elsewhere in this issue of SCIENCE.

It was the unanimous opinion of the members of the committees that an organization should be effected representing the scientific men of the country, and that the functions of this organization, broadly speaking, should be as follows:

1. To bring scientific research to bear more effectively upon the problems of conservation. This involves the extension among research men of a knowledge of the scope, the objectives, and the economic problems of conservation, and the assurance that in the studies of each resource there is an appreciation of its relation to other resources, and the correlation of the programs of research in each field of work.

2. To assemble the available data relating to our natural resources, and the interpretation of these data from the standpoint of conservation and of the relation of the problems of the various resources, severally and taken together, to the economic, industrial, and social welfare of different regions and of the nation as a whole. This work is essential for an adequate definition of our conservation problems, and to furnish the economic background for the many proposals for public action by the states and by the federal government.

3. To bring about the introduction in our educational institutions of instruction in the principles underlying conservation. The plan of instruction should be subject to great variation in different institutions. The instruction might be given in connection with courses in economic or political and social science, or economic and industrial history, or in connection with various courses in engineering and applied science, or in special courses in conservation.

The undertaking would involve personal contact and cooperation with the institutions or educational organizations. It would involve further suggestions as to the preparation of text-books and special material for demonstration, such as charts, models and maps, and suggestions regarding the methods of instruction.

4. To effect leadership in a campaign of popular education as to the meaning of conservation, and the necessity for the adoption of its principles.

5. To bring into effective harmony the efforts of the different forces of the country concerned with conservation based upon scientific research which it is difficult for any of the existing agencies to effect.