

PUBLICATIONS
of the
AMERICAN SOCIETY OF AGRONOMY
and of the
SOIL SCIENCE SOCIETY OF AMERICA

THE JOURNAL OF THE AMERICAN SOCIETY OF AGRONOMY

Issued on the 15th day of each month at Geneva, N.Y., U.S.A.

Contains original articles on research, teaching, and extension in soils and crops. Approximately 1000 pages a year and includes the proceedings of the annual meeting of the Society. Numerous back numbers also available.

Subscription price, \$5.00 per volume (12 numbers) in the United States and Canada; \$5.50 elsewhere. Sample copies supplied upon request.

GENERAL INDEXES (AUTHOR AND SUBJECT) TO THE JOURNAL

Index of Vols. 1-20, inclusive (1907-1928), 44 pages with covers	\$0.50 post paid
Index of Vols. 21-30, inclusive (1929-1938), 83 pages with covers	\$1.00 post paid

PROCEEDINGS OF THE SOIL SCIENCE SOCIETY OF AMERICA

Contains papers given at the annual meetings of the Society; also reports and business transactions.

Volume 1 (1936), 526 pages, illustrated	\$5.00 post paid
Volume 2 (1937), 602 pages, illustrated	\$5.00 post paid
Volume 3 (1938), 370 pages, illustrated	\$5.00 post paid

PROCEEDINGS OF THE FIRST INTERNATIONAL CONGRESS OF SOIL SCIENCE

Volumes 1 to 4 (Commissions I, II, III and IV, and V and VI, respectively)
\$2.50 per set of 4 volumes, post paid

BULLETIN OF THE AMERICAN SOIL SURVEY ASSOCIATION
(Discontinued)

Nos. XI, XII, XIII, XIV, XV, XVI, and XVII (1930-1936) \$2.50 each, post paid

ADDRESS ALL COMMUNICATIONS TO

J. D. LUCKETT, *Editor*
American Society of Agronomy
GENEVA, N.Y., U.S.A.

CONTENTS

	PAGE
1. COMMON, R. H. Observations on the mineral metabolism of pullets. V. Acid-base equilibrium and reproductive activity. (With eight text-figures)	281
2. LEWIS, A. H. The placement of fertilizers. I. Root crops	295
3. STEWART, A. B. Soil properties in relation to the occurrence of grass sickness in horses	308
4. ALLCROFT, W. M. Observations on the haemoglobin level of cows and sheep	320
5. RUSSELL, E. W. and KEEN, B. A. Studies in soil cultivation. X. The results of a six-year cultivation experiment	326
6. ANDERSON, J. Further investigations on artificial insemination of cattle	348
7. ANDERSON, J. Further investigations on artificial insemination of sheep	354
8. SMITH, A. M. and TUNG WANG. The carotene content of certain species of grassland herbage. (With one text-figure)	370

The Journal of Agricultural Science is issued in quarterly parts of about 150 pages with plates and figures, four parts constituting a volume.

Volumes XVI-XX (1926-1930) are out of print. Quotations can be given for other back volumes and parts.

Quotations can also be given for buckram binding cases and for binding subscribers' sets.

Papers for publication should be typewritten or written in a very legible hand, and may be sent to Dr F. H. A. MARSHALL, School of Agriculture, Cambridge, or to the associate Editors. Other communications should be addressed to the University Press, Cambridge.

Bibliography should be given under the heading of "References" in the following form:

Surname of authors (in alphabetical order), initials, date of publication (in brackets), title of Journal (abbreviated according to the *World List of Scientific Periodicals*), volume and pages of reference. In the text a reference should be quoted by the author's name and date (in brackets).

All names of Journals and books should be in italics.

Contributors will receive twenty-five copies of their papers free. A limited number of additional copies may be purchased if ordered when final proof is returned.

The subscription price for each volume, payable in advance, is 30s. net per volume (post free); single numbers 10s. net. Subscriptions may be sent to any Bookseller, or to The Cambridge University Press, Bentley House, 200 Euston Road, London, N.W. 1.

The Cambridge University Press has appointed the University of Chicago Press, agents for the sale of *The Journal of Agricultural Science* in the United States of America.