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OF THE
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INDIA

1938-39.



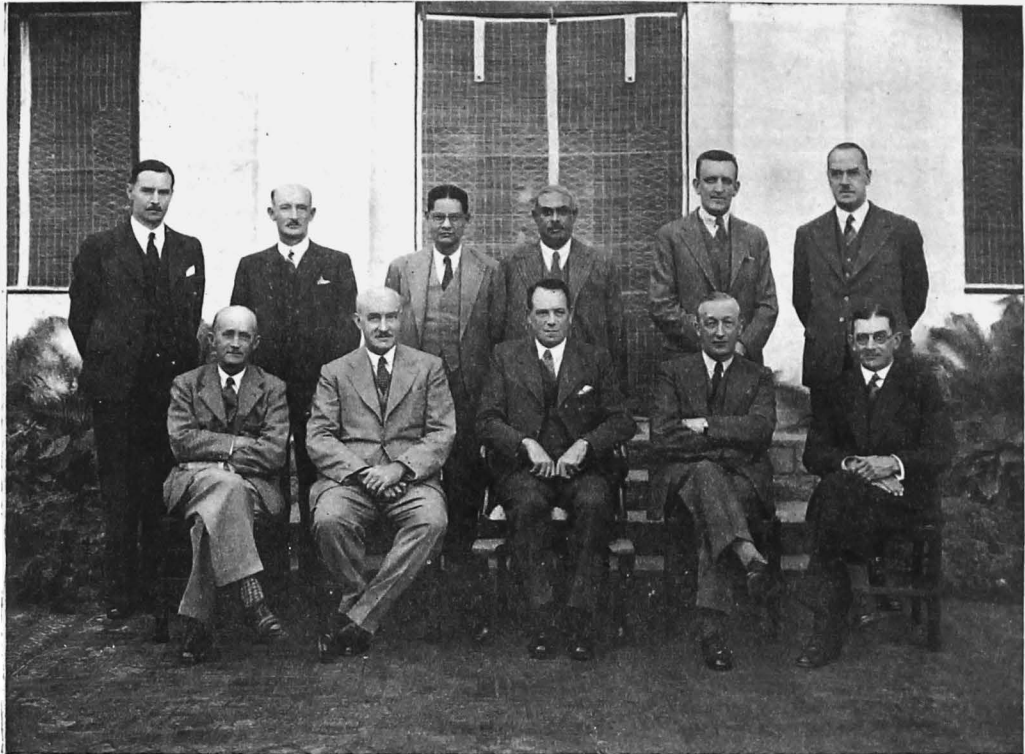
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EDITED BY

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Secretary.

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FOREWORD.

CENTRAL BOARD OF IRRIGATION
SIMLA, INDIA.

This "Annual Report", which is published to make known to Engineers in India and other countries the problems confronting Irrigation Engineers in India, and the research and investigations, undertaken to solve them, is the fifth issue of its kind, and records the technical work of the Central Board of Irrigation during the year 1938-39.

The technical discussions are the result of three meetings given hereunder in chronological order :—

- (i) The Third Winter Meeting of the Research Committee, March 1939.
- (ii) The Ninth Annual Meeting of the Research Committee, July 1939.
- (iii) The Tenth Annual Meeting of the Central Board of Irrigation, November 1939.

For the information of the two last named meetings, summaries were prepared of the work done during 1938-39 by the five Research Stations which operate under the aegis of the Central Board of Irrigation, and are included with discussions in this publication.

The technical contents of the volume have been divided into seventeen groups, and the relevant discussions of the three meetings appear under their respective groups. It is thought that this new arrangement will facilitate reference.

Efforts have been made to provide a fully comprehensive index.

The undersigned would like to repeat the request contained in previous reports, for the supply of information relating to any of the problems mentioned in this publication, or any other matters of interest to Irrigation Engineers. He will gladly furnish further details of any of the experiments, investigations, etc., or other information relating to the problems mentioned in this Report.

A. R. B. EDGECOMBE,
Secretary,
Central Board of Irrigation.

Dated the 8th January, 1940.

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List of Sub-Committees provided by the Central Board of Irrigation.

Serial No.	Name.	Date.
1	Sub-committee convened to examine the Nayaunggyat Dam Project, Burma	12th December 1927.
2	Sub-committee convened to enquire into the causes of floods in Orissa and possible remedies	22nd August 1928.
3	Sub-committee convened to report on the practicability of the proposal of the Engineer-in-Chief, Cauvery Metur Project to utilize cement concrete in place of cyclopean masonry in surkhi mortar in the construction of the Metur Dam	11th April 1929.
4	Sub-committee convened to examine the causes of failure of the Islam Weir, Sutlej Valley Project, on the 19th September 1929	10th December 1929.
5	Sub-committee convened to report on the organization of the Irrigation Department, Bengal and the practicability of separating the Department and forming a separate Board of Waterways	13th March 1930.
6	Sub-committee convened to enquire into the desirability of remodelling the headworks and canal system of the Son Canals in Bihar and Orissa	16th January 1931.
7	Sub-committee convened by the Government of India to report upon the Quetta Drainage Scheme, Baluchistan	24th February 1934.
8	Sub-committee convened by the Government of India to report on the conversion of the Paharpur Canal (North-West Frontier Province) into a perennial canal	15th September 1934.
9	Sub-committee convened by the Government of India to report on Distribution of the Waters of the Indus and its Tributaries	1934-35.
10	Sub-committee convened to suggest protective measures against damage caused by floods in 1935 to "Anderson Weir" of the Damodar Canal, Bengal	1935-36.
11	Sub-committee convened to examine the Haveli (Punjab) Project, 1935	10th August 1936.
12	Sub-committee convened by the Government of India to examine the Khairpur State Lloyd Barrage Project, 1935-36	13th December 1937.
13	Sub-committee convened by the Government of India to examine the Spin Karez Dam Project in Baluchistan	26th December 1938.

List of Publications issued by the Central Board of Irrigation .

Publication No.	Title.	Date.	Number in stock on 1st January 1940.
1	Digest of Technical Notes 1931 (Reprint) . . . A summary of views of Chief Engineers on the following subjects :— I.—Waterlogging and Reclamation. II.—Effect of deforestation and afforestation on river floods. III.—Design of works on sand foundations. IV.—Fluming of canal works. V.—Regulation at canal headworks. VI.—Design of canal falls.	24th October 1931 .	17
2	Digest of Technical Notes 1932 A summary of views of Chief Engineers on the following subjects :— I.—Waterlogging. II.—Design of works on sand foundations. III.—Design of canal falls. IV.—Staunching of canals.	15th October 1932 .	Nil.
3	Catalogue of Books in the Library of the Central Board of Irrigation, Simla First Supplement to the Catalogue of Books Second Supplement to the Catalogue of Books	2nd January 1934 . 2nd January 1935 . 2nd January 1936 .	Nil. Nil. 180
4	Hydraulic Diagrams : Energy-of-Flow, Pressure-plus-Momentum Diagrams for the simple graphic solution of problems involving a change of section in a stream of water	31st July 1934 .	Nil.
5	Glossary of Technical and Vernacular Terms in connection with Irrigation in India together with Standard Notations	15th October 1934 .	Nil.
6	Fluming : A series of examples illustrating the use of Hydraulic Diagrams—Central Board of Irrigation Publication No. 4	31st November 1934 .	Nil.
7	Standing Wave or Hydraulic Jump	1st December 1934 .	Nil.
8	Observations and Record of Pressures below Works on Permeable Foundations	15th December 1935 .	Nil.
9	Stabilization of Soils by the use of Bitumen Emulsion	1st February 1935 .	Nil.
10	Irrigation Canal Falls	15th February 1935 .	Nil.
11	Annual Report (Technical) of the work of the Central Board of Irrigation, India, 1934-35	1st May 1936	147
12	Design of Weirs on Permeable Foundations	1st September 1936	132
*13	Annual Report (Administrative) of the work of the Central Board of Irrigation, India, 1935-1936	1st October 1936	22
14	Annual Report (Technical) of the work of the Central Board of Irrigation, India, 1935-36	1st April 1937	190
*15	Annual Report (Administrative) of the work of the Central Board of Irrigation India, 1936-1937	15th September 1937	21

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Publication No.	Title.	Date.	Number in stock on 1st January 1940.
16	Annual Report (Technical) of the work of the Board of Irrigation India, 1936-37	1st April 1938	116
17	Notes on Waterlogging and Land Reclamation in the form of a Questionnaire	15th September 1938	220
*18	Annual Report (Administrative) of the Central Board of Irrigation India, 1937-38	15th September 1938	21
19	Annual Report (Technical) of the Central Board of Irrigation India, 1937-38.	1st April 1939	129
20	Regime Flow in Incoherent Alluvium	18th July 1939	In press.
*21	Annual Report (Administrative) of the Central Board of Irrigation, India, 1938-39	15th September 1939	22

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