

**BULLETIN 395. RADIOACTIVITY
OF THE THERMAL WATERS OF
YELLOWSTONE NATIONAL
PARK**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649194735

Bulletin 395. Radioactivity of the thermal waters of Yellowstone National Park by Herman Schlundt & Richard B. Moore

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

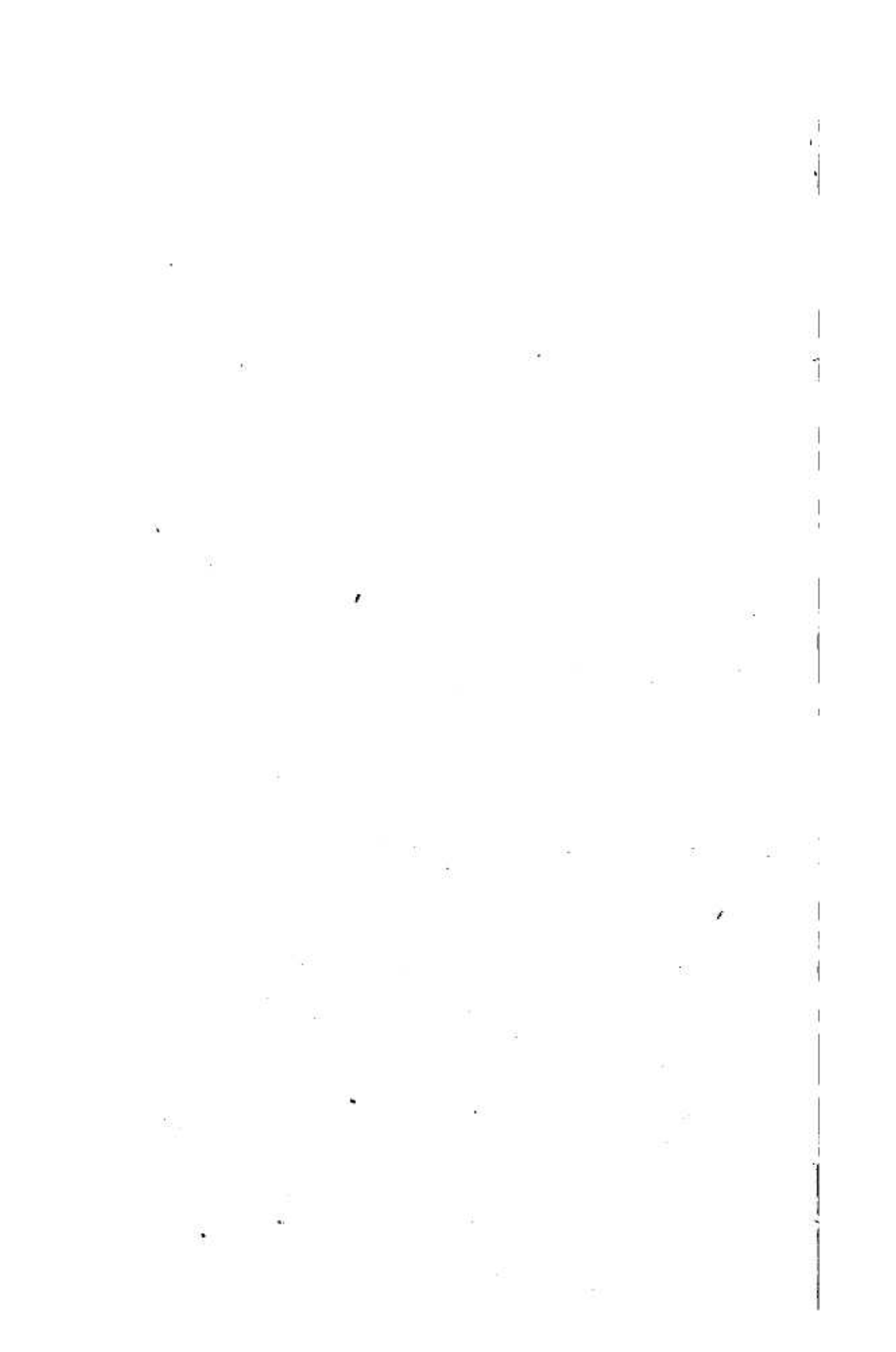
Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

HERMAN SCHLUNDT & RICHARD B. MOORE

**BULLETIN 395. RADIOACTIVITY
OF THE THERMAL WATERS OF
YELLOWSTONE NATIONAL
PARK**



DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

GEORGE OTIS SMITH, DIRECTOR

BULLETIN 395

RADIOACTIVITY OF THE THERMAL WATERS
OF YELLOWSTONE NATIONAL PARK

BY

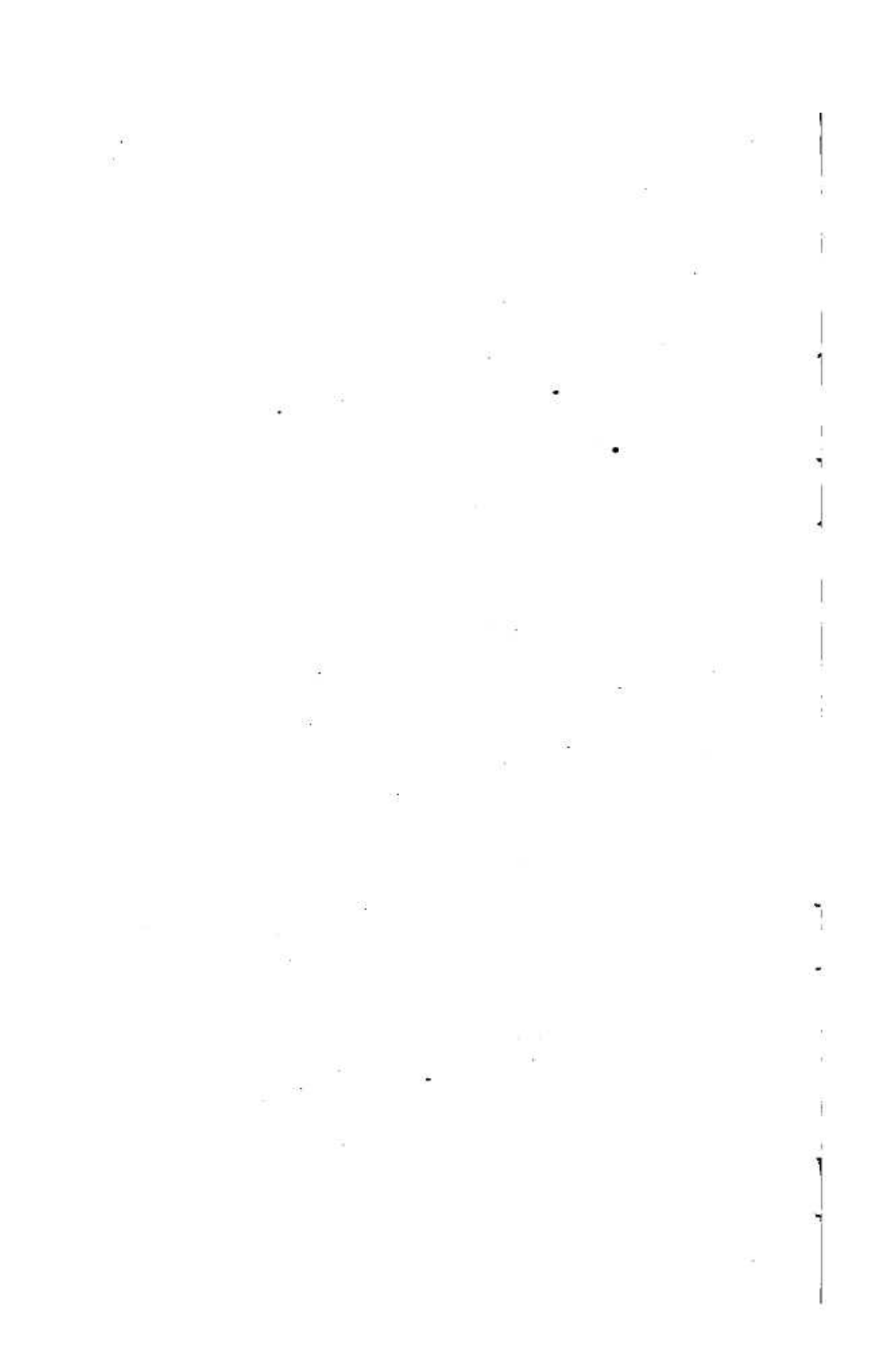
HERMAN SCHLUNDT

AND

RICHARD B. MOORE



WASHINGTON
GOVERNMENT PRINTING OFFICE
1909



CONTENTS.

	Page
Introduction.....	5
Purpose of the report.....	5
Waters in Yellowstone Park.....	5
Scope of the investigation.....	6
General plan of work.....	6
Acknowledgments.....	7
Apparatus.....	7
Description of electroscopes.....	7
Standardizing the electroscopes.....	9
Electric capacity.....	12
Methods of procedure.....	13
Field examination of gases.....	13
Field tests of waters.....	16
Testing of solids.....	17
Results of the experiments.....	18
General statement.....	18
Example showing method.....	18
Radioactivity of gases.....	20
Radioactivity of waters.....	22
Radioactivity of water residues, spring deposits, and rock samples.....	25
Summary of radioactivities.....	27
Discussion of results.....	28
Gas activities.....	28
Thorium emanation.....	28
Relative activity.....	28
Gases from European springs.....	29
Helium not determined.....	29
Activity of waters.....	30
Inferences from different results.....	30
Comparison with European waters.....	31
Radium content of deposits of rocks.....	32
Comparative activities of different rocks.....	32
Radioactive equilibrium.....	33
Estimate of age of deposits.....	33
Comparative test for uranium by analysis.....	34
Relation to hydrothermal activity.....	34

ILLUSTRATIONS.

	Page.
PLATE I. Grotto Geyser, Yellowstone National Park.....	5
II. Norris Geyser Basin.....	18
III. A, Old Faithful Geyser, Upper Geyser Basin; B, Hot Spring, Norris Geyser Basin, where thorium was first discovered in the United States.....	28
IV. Morning Glory Pool, Upper Geyser Basin.....	32
FIGURE 1. Electroscope.....	8
2. Apparatus for separating emanation from uraninite.....	10
3. Apparatus for qualitative tests in the field.....	13
4. Curves showing difference in the radioactivity of gases containing (A) thorium and radium emanation and (B) radium emanation....	14
5. Apparatus for collecting gas in the field.....	15
6. Detail of apparatus for collecting gas in the field.....	15
7. Decay curve of radium emanation.....	16

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial matters. This section also outlines the various methods and tools available for tracking and documenting data, ranging from traditional paper-based systems to modern digital solutions.

2. The second part of the document focuses on the legal and regulatory requirements that govern record-keeping practices. It details the specific rules and standards that organizations must adhere to, including retention periods, access controls, and data protection measures. This section highlights the consequences of non-compliance and provides guidance on how to ensure that all records are maintained in accordance with applicable laws and regulations.

3. The third part of the document addresses the challenges and risks associated with record-keeping. It identifies common pitfalls, such as data loss, corruption, and unauthorized access, and offers strategies to mitigate these risks. This section also discusses the importance of regular backups, disaster recovery plans, and security audits to ensure the integrity and availability of records over time.

4. The fourth part of the document explores the benefits of effective record-keeping practices. It highlights how well-maintained records can improve decision-making, enhance operational efficiency, and provide valuable insights into organizational performance. This section also discusses the role of records in legal proceedings and the importance of having a clear and accessible record of events and transactions.

5. The fifth part of the document provides a summary of the key points discussed throughout the document. It reiterates the importance of record-keeping and offers final recommendations for organizations looking to optimize their record-keeping practices. This section also includes a list of resources and references for further information on this topic.



GROTTO GEYSER.