

**BULLETIN 3. DRAINAGE  
RECLAMATION IN  
TENNESSEE. FIRST PAPERS**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649344185

Bulletin 3. Drainage reclamation in Tennessee. First papers by Geo. H. Ashley & A. E. Morgan & S. H. McCrory

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](http://www.triestepublishing.com)

**GEO. H. ASHLEY & A. E. MORGAN & S. H. MCCRORY**

**BULLETIN 3. DRAINAGE  
RECLAMATION IN  
TENNESSEE. FIRST PAPERS**



STANFORD  
LIBRARIES

STATE OF TENNESSEE  
STATE GEOLOGICAL SURVEY  
GEO. H. ASHLEY, STATE GEOLOGIST

BULLETIN 3

DRAINAGE RECLAMATION IN TENNESSEE  
FIRST PAPERS

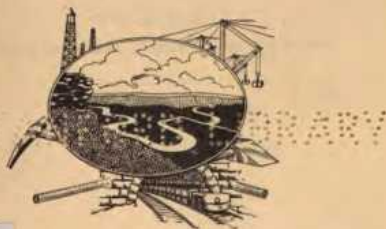
DRAINAGE PROBLEMS IN TENNESSEE.

*By Geo. H. Ashley.*

PRELIMINARY REPORT UPON THE LANDS OVERFLOWED  
BY THE NORTH AND MIDDLE FORKS OF FORKED DEER  
RIVER AND RUTHERFORD FORK OF THE OBION RIVER  
IN GIBSON COUNTY, TENNESSEE.

*By A. E. Morgan and S. H. McCrory.*

THE DRAINAGE LAW OF TENNESSEE.



557.4

T2

no. 3

BRAN

NASHVILLE, TENNESSEE

1910

## State Geological Commission

---

MALCOLM R. PATTERSON, *Chairman,*  
*Governor of Tennessee.*

JOHN THOMPSON,  
*State Commissioner of Agriculture.*

R. A. SHIFLETT,  
*Chief Mine Inspector.*

BROWN AYRES,  
*President, University of Tennessee.*

J. H. KIRKLAND,  
*Chancellor of Vanderbilt University.*

WM. B. HALL,  
*Vice-Chancellor, University of the South.*

---

GEORGE H. ASHLEY,  
*State Geologist.*



3-A

STATE OF TENNESSEE  
STATE GEOLOGICAL SURVEY  
GEO. H. ASHLEY, STATE GEOLOGIST

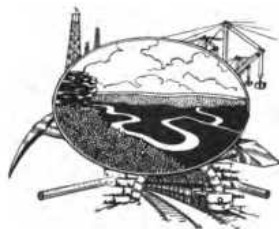
---

## Drainage Problems in Tennessee

BY GEO. H. ASHLEY

---

EXTRACT (A) FROM BULLETIN No. 3, DRAINAGE  
RECLAMATION IN TENNESSEE, 1910.



NASHVILLE, TENNESSEE

1910



## CONTENTS

---

Value of alluvial lands .....	7
Need of their protection .....	7
Reclamation of glaciated areas.....	7
Financial return for reclamation .....	8
How funds are obtained .....	8
General conditions in West Tennessee .....	8
Physical condition of drainage in West Tennessee .....	10
Width of bottom lands .....	11
Gradient of streams .....	11
Growth of flood conditions .....	12
Reclamation problems .....	12
Stages of reclamation .....	13
Causes of reclamation values .....	13
Preliminary data to be collected .....	13
Planning construction .....	13
Tennessee Drainage law, passage of .....	14
State Geological Survey and drainage work.....	14
Peculiar province of Geological Survey in drainage work.....	14
Final results .....	15

# DRAINAGE PROBLEMS IN TENNESSEE

BY GEORGE H. ASHLEY.

## VALUE OF ALLUVIAL LANDS.

In all places, and at all times, it has been true that the alluvial lands excel all others in fertility and durability. The valley of the Nile, long known as the grainery of the world, is but one example out of thousands. The soil of the bottom lands of the rivers is made up of a mixture of all of the materials derived from the various rocks exposed to weathering in the valley above. At the same time with every flood large quantities of leaves and other vegetation is washed over the flooded lands and deposited with the sand, clay, silt, or other material. These deposits are built up with every flood, gaining in depth from year to year.

## NEED OF THEIR PROTECTION.

But it has also been true in most places that the same floods that build up and render these bottom lands fertile have prevented their use for agriculture to a greater or less degree. Where the overflow is not excessive and does not come when crops are growing, it may be possible to carry on a precarious form of agriculture; the fat years making up for the lean years when crops are ruined by overflow. But in most countries, both ancient and modern, these rich bottom lands have been cultivated only after they have been protected from the ravages of floods, either by digging drainage channels or ditches, or by raising levees, or both. The valleys of the Nile, Tigris, Euphrates and Kiang rivers, the English "Fens," and the coastal lands of Holland, are well known examples of such protected or reclaimed lands.

## RECLAMATION OF GLACIATED AREA.

The northern United States within the area covered by the great glaciers of the ice age is full of marshy areas formed by irregular dumping of the dirt pushed or carried by the glaciers. In the early times these places were avoided by the settlers as the breeding places for malaria, as valueless for agriculture, as places in which to lose cattle, fit only to harbor wild animals. But during the last few decades, especially, there has come a realization of the agricultural possibilities of these lands, and everywhere they are being drained with most satis-

factory results. Lands which before were only a menace to health and life become the richest lands of the region, and people who were eking out a precarious existence on the adjoining hills found the worthless swamps the highway to wealth and prosperity.

#### FINANCIAL RETURN FOR RECLAMATION.

In the reclamation of these lands it has commonly been found true that the income from one or two crops will pay the cost of the improvements necessary to secure immunity from the floods. On the other hand, the loss of a single crop through inadequate protection has often meant several times as much loss as the additional cost of adequate protection would have been. To be feasible, any land so reclaimed must be worth more than its value before reclamation, plus the cost of reclaiming. Where land worth \$10 to \$20 an acre can be reclaimed for \$10 to \$15 an acre, and then be worth \$50 to \$75 an acre, there can be no doubt as to the feasibility or desirability of its reclamation.

#### HOW FUNDS ARE OBTAINED.

One of the chief difficulties in the past has been that too often the unreclaimed land has not sufficient value to serve as security for financing the necessary engineering construction. Such reclamation only becomes possible, therefore, when the land owners have other funds or property, or the funds are advanced from some outside source. It is to meet these needs that in recent years most of the States have passed laws enabling counties in which drainage work is needed to advance the necessary money to be paid back in installments after the land comes into production. In that way the land in a few years pays for its own improvement.

#### GENERAL CONDITIONS IN WEST TENNESSEE.

This general subject has a very live interest for the citizens of Tennessee, because of the large areas, particularly in West Tennessee, that are subject to overflow, and that may be profitably reclaimed. While the larger streams all through the State have more or less bottom lands along their courses, in Middle and East Tennessee these form but a small percentage of the several drainage basins. In some cases, as in Stewart county, the area is quite large, as it is estimated that nearly or quite 50,000 acres of that county are included in the bottoms of the Tennessee and Cumberland rivers and their tributaries. But this is rather exceptional, and in a large number of cases these lands are not