

**ON THE NATURE OF
THUNDERSTORMS AND ON THE
MEANS OF PROTECTING BUILDINGS
AND SHIPPING AGAINST THE
DESTRUCTIVE EFFECTS OF LIGHTNING**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649662678

On the Nature of Thunderstorms and on the Means of Protecting Buildings and Shipping
Against the Destructive Effects of Lightning by W. Snow Harris

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

W. SNOW HARRIS

**ON THE NATURE OF
THUNDERSTORMS AND ON THE
MEANS OF PROTECTING BUILDINGS
AND SHIPPING AGAINST THE
DESTRUCTIVE EFFECTS OF LIGHTNING**

ON THE NATURE
OF
THUNDERSTORMS;
AND ON THE MEANS OF
PROTECTING BUILDINGS AND SHIPPING
AGAINST THE
DESTRUCTIVE EFFECTS OF LIGHTNING.



Sir William
By W. SNOW HARRIS, F.R.S.

LONDON:
JOHN W. PARKER, WEST STRAND.
M.DCCC.XLIII.

TO

THE RIGHT HONOURABLE

SIR GEORGE COCKBURN, G.C.B., F.R.S.,

ADMIRAL OF THE RED, MAJOR-GENERAL OF THE ROYAL
MARINES, ONE OF THE LORDS COMMISSIONERS
OF THE ADMIRALTY,

4c., 4c., 4c.

DEAR SIR,

Having been honoured by your permission to dedicate to you the following pages, I avail myself of the opportunity to express publicly my sense of the full consideration which, so long since as the year 1830, you gave to my proposals for defending Her Majesty's ships from the destructive effects of Lightning.

Your anxious regard for the national welfare, and especially for the interests of the Navy of England, would necessarily have ensured a patient investigation of such proposals; but the kind attention with which you received my statements, and the candour and fairness with which you inquired into the many objections that were urged against them, have rendered the distinction of your approbation most valuable to me.

That your opinion of the propriety of giving my method of fixing conductors in ships an adequate trial

was not erroneous, is fully shown by the uniform success which has attended its adoption in about thirty vessels of Her Majesty's Navy, which during the last twelve years have been exposed to heavy storms of lightning in various latitudes, without experiencing the slightest inconvenience or damage.

Permit me, Sir, to add the expression of my respect for the many eminent public services which you have rendered this great maritime nation, and my grateful acknowledgment of the many personal kindnesses I have received at your hands. That your valuable life may long be spared to your country and to your friends, is the earnest wish of,

Dear Sir,

Your faithful friend and servant,

SNOW HARRIS.

PREFACE.

THE fact of electrical conduction by metallic substances having been so long and so well established, any further discussion of the application of this principle to the purpose of protection against lightning may possibly appear to persons, conversant with such subjects, as in some degree superfluous. The damage, however, which so frequently occurs in thunderstorms, attended as it is with loss of life, and with serious inconvenience to the best interests of the country, may be fairly adduced as a sufficient reply to such an opinion.

The beautiful spire of St. Martin's church, in London, has been recently rebuilt, at a cost of full one thousand pounds sterling, in consequence of an explosion of lightning, which fell on it in July last. Brixton church, near London, had also to undergo extensive repairs, rendered necessary from the same cause. In January, 1841, the spires of Spitalfields and Streatham churches, were struck by lightning, and the latter nearly destroyed:

and in August of the same year an electrical discharge shook the spires of St. Martin's and St. Michael's churches, at Liverpool, both modern edifices of a costly and elaborate construction. In January, 1836, the spire of St. Michael's church, near Cork, was rent by lightning down to its very base; and in the following October the magnificent spire of Christ church, Doncaster, was almost totally destroyed by a similar discharge.

Thus, in the United Kingdom alone, and within the short space of five years, we find at least eight churches to have been either severely damaged or partially demolished by lightning; to this list of casualties may be added the fine old church of Exton, in Rutland, which, according to the public journals, was in great measure destroyed in a thunderstorm, so lately as the 25th of last April. A writer in *NICHOLSON'S Journal of Science*, states that he has made a calculation of the average annual amount of damage done by lightning in England alone, and that it cannot be far short of fifty thousand pounds.

In the British Navy the effects of lightning have been most disastrous. Since the commencement of the war in 1793, more than two hundred and fifty ships are known to have suffered in

thunderstorms. It is not possible to state with any degree of precision the total amount of damage done, as all the instances in which ships have suffered cannot be well ascertained: some idea, however, may be formed of it from the following facts, derived from the official journals of Her Majesty's ships, deposited at the Admiralty. In one hundred and fifty cases, the majority of which occurred between the years 1799 and 1815, nearly one hundred lower masts of line-of-battle ships and frigates, with a corresponding number of topmasts and smaller spars, together with various stores, were wholly or partially destroyed. One ship in eight was set on fire in some part of the rigging or sails; upwards of seventy seamen were killed, and one hundred and thirty-three wounded, exclusive of nineteen cases in which the number of wounded is returned as "many" or "several." In one-tenth of these cases the ships were completely disabled, and they were compelled in many instances to leave their stations, and that too at a critical period of our history. The expenditure in these few cases in the mere material, could not have been far short of one hundred thousand pounds sterling. So that if the whole amount of the loss to the public, in men,

in money, and in services of ships, could be ascertained, it would necessarily prove to be enormous; more especially when we take into account the expense of the detention and refit of the damaged vessels, the average cost of a single line-of-battle ship to the country being one hundred pounds per diem and upwards. Now between the years 1809 and 1815, that is to say, within the short period of six years, full thirty sail of the line, and fifteen frigates, were more or less disabled.

A very considerable portion of this mass of destruction occurred, it is true, at a time when a great number of ships were required; but at a more recent period, in time of peace, when the Navy has been greatly reduced, we find a large amount of these casualties to be constantly occurring. On the Mediterranean station alone, between the years 1838 and 1840, the *Rodney*, *Powerful*, *Ceylon*, *Tribune*, *Scorpion*, *Wasp*, *Tyne*, and *Blazer*, were struck by lightning, and many of them severely damaged: the *Rodney*, in addition to the destruction of her mainmast, was set on fire. In little more than twelve months, about the year 1830, three line-of-battle ships, a frigate, and a brig, were also more or less disabled. In other parts of the world we