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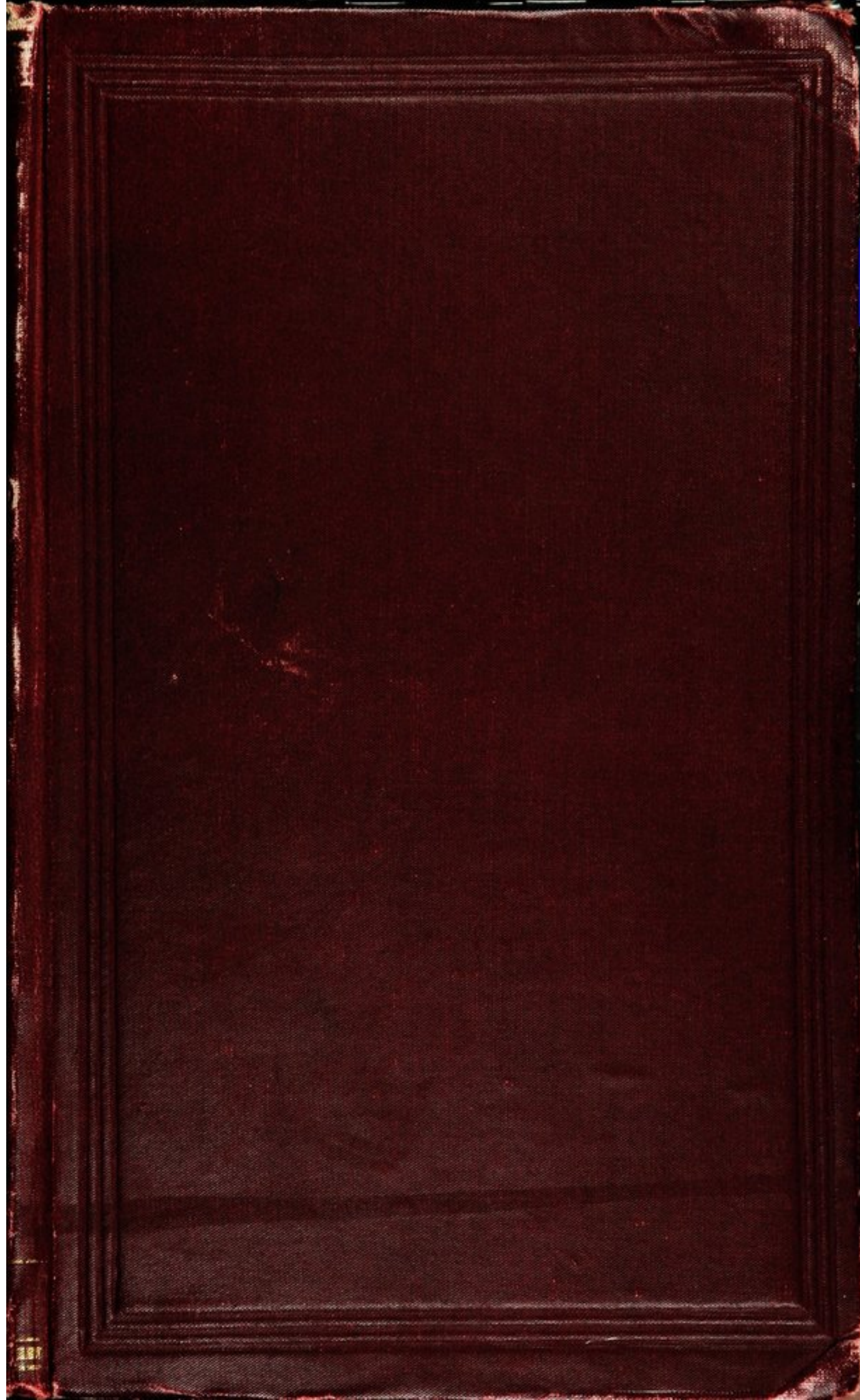
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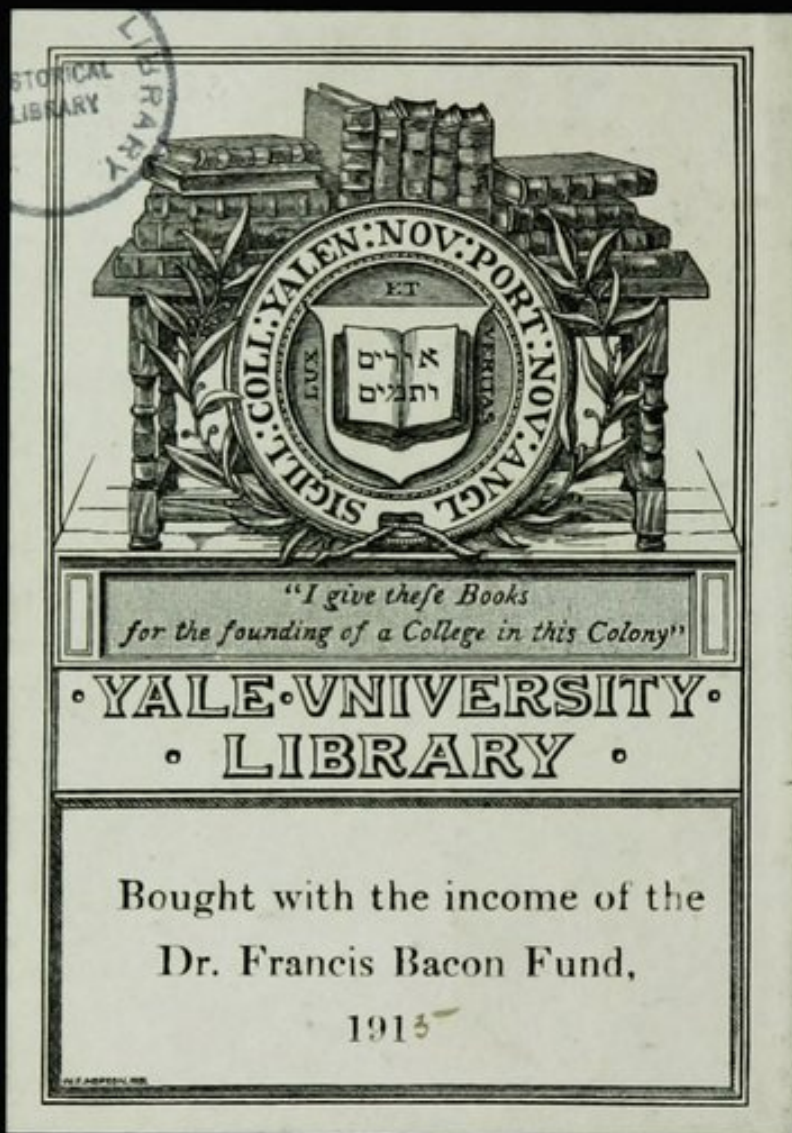
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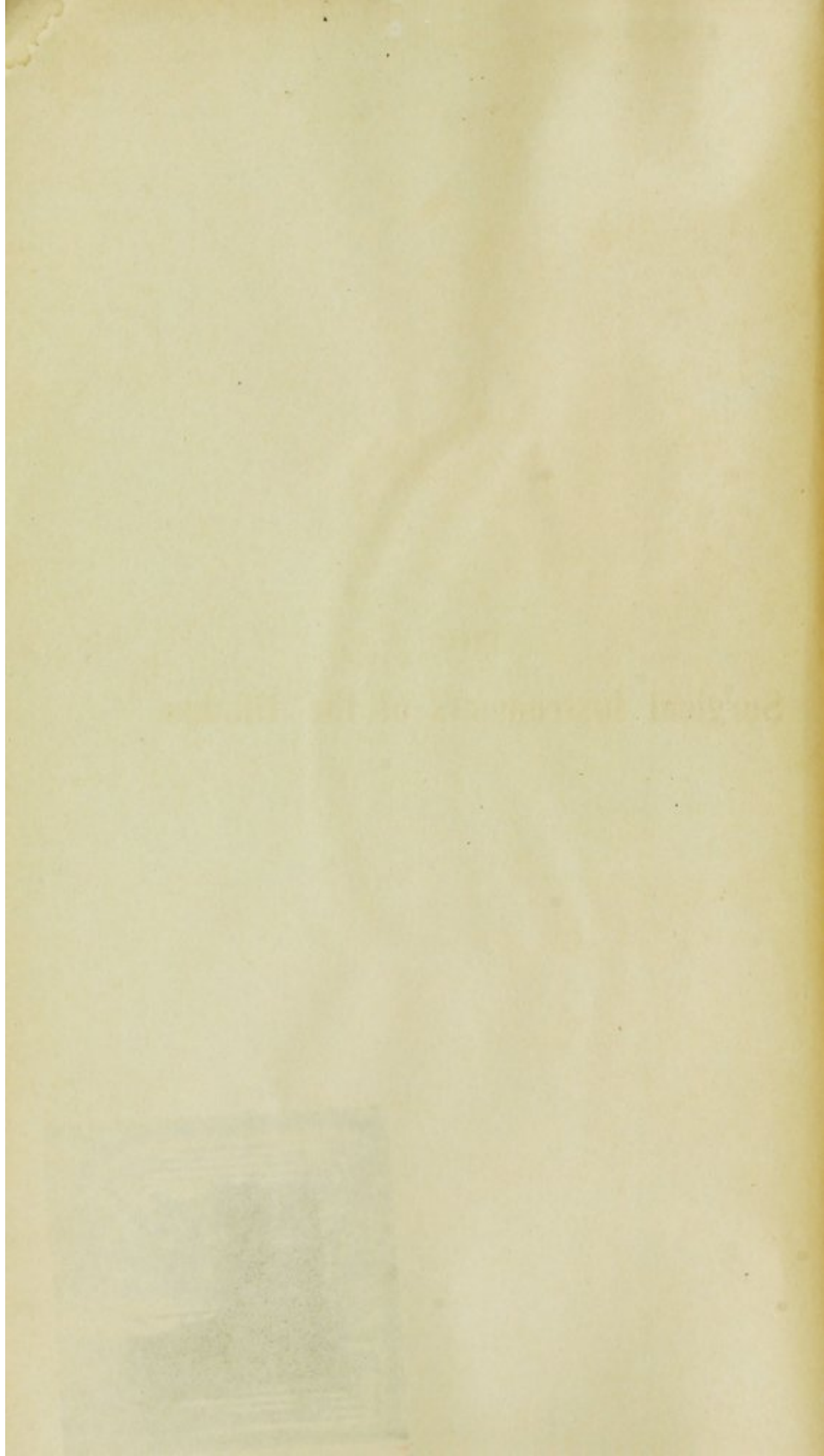
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THE
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THE
SURGICAL INSTRUMENTS
OF THE HINDUS

WITH

A Comparative Study of the Surgical Instruments of
the Greek, Roman, Arab and the Modern
European Surgeons

BY

GIRINDRANĀTH MUKHOPĀDHYĀYA, B.A., M.D.

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and Surgeons (Bengal), Member of the Asiatic Society of Bengal,
Life Member and Professor of Botany, Indian Association
for the Cultivation of Science, Examiner,
Calcutta University.*

Griffith Prize Essay for 1909

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396 Illustrations in 82 Plates

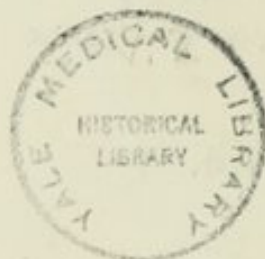
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PREFACE

Much trouble has been taken with our illustrations, but the author is fully conscious of their many defects. I am greatly indebted to several authors mentioned in the legends to the plates as the readers will find certain of their illustrations copied in this volume. It was found necessary in a comparative study of the surgical instruments used by the different nations of the world. It has been my wish to render due credit to all persons for the illustrations by which they may severally have contributed to the advancement of our knowledge of the subject, and I have never assumed to myself drawings, which belong to others. For those illustrations, not otherwise acknowledged, the author is solely responsible.

For his skill and patience in drawing and printing these figures I am glad to take this opportunity of thanking Mr. K. V. Seyne.

The author deems it a pleasant duty to express his thanks to the University of Calcutta for the liberality displayed in the matter of illustrations.

80, RUSSA ROAD NORTH, }
Calcutta, February, 1914. } G. N. MUKHOPĀDHYĀYA.

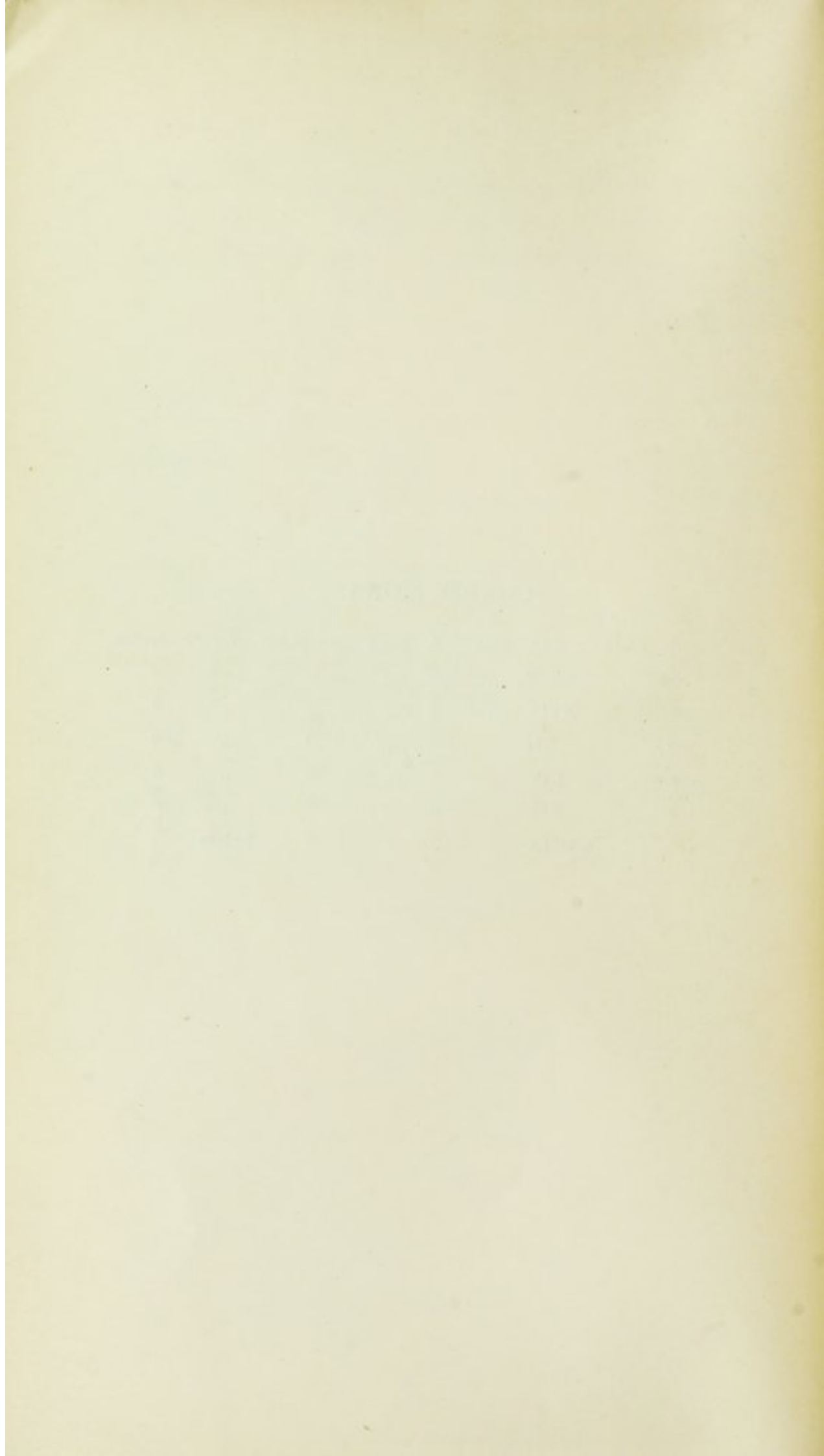
ABBREVIATIONS

- Adams : The Genuine Works of Hippocrates. Translated
by Francis Adams, LL.D. in two volumes.
(Sydenham Society).
- A. H. : Catalogue of Surgical Instruments and
Appliances. Allen and Hanburys Ltd. 1903.
- A. S. : Catalogue of Surgical Instruments and
Appliances. Arnold and Sons. 1895.
- Anderson : See Wellcome.
- B. B. : Surgical Instruments and Appliances. Burgoyne,
Burbidges & Co.
- C. C. G. : Collection de Chirugiens Grecs. Bibliothèque
Nationale. Paris.
- Erichsen : The Science and Art of Surgery. By Sir John
Eric Erichsen Bt., F.R.S., LL.D. Tenth
Edition. 1895.
- Esmarch : The Surgeon's Handbook of the Treatment of
Wounded in War. By Dr. Friedrich Esmarch.
- Heath : Minor Surgery and Bandaging. By C. Heath,
F.R.C.S. Second Edition.
- I. M. G. : Indian Medical Gazette, 1904.
- K. S. : Catalogue of Surgical Instruments. Kny-
Scheerer & Co.
- Milne : Surgical Instruments in Greek and Roman
Times. By T. S. Milne, M.A., M.D., 1907.
- Porter : The Surgeon's Pocket-Book. The Best
Treatment of Wounded in War. By
Surgeon-Major T. H. Porter. 1891.
- Princep : Princep's (Thomas') Indian Antiquities. ✓

- Swain : Surgical Emergencies. By W. P. Swain,
F.R.C.S. Third Edition. 1880.
- Thakore Saheb : History of Aryan Medical Science. By H. H.
Sir Bhagvat Singh Jee., K.C.I.E., M.D.,
D.C.L., LL.D., F.R.C.P.E. Thakore Saheb
of Gondal. 1896.
- Waggett : Diseases of the Nose. By E. B. Waggett,
M.A., M.B., B.C. 1907.
- Wellcome : Third Report of the Wellcome Research
Laboratories at the Gordon Memorial College,
Khartoum.
- White : The Veterinary Art. By James White. 1851.
-

CORRECTIONS

Page	37	Plate	XIX	Fig.	5	Read	Samipatra	for	Amipatra.
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"	88	"	XLIV	"	3	"	2	"	3
	103	"	LII	"	209	"	4	"	209
"	108	"	LIV	"	5	"	6	"	5
"	108	"	LIV	"	6	"	5	"	6
	157	"	LXXIX	"	5	"	5	before	—.



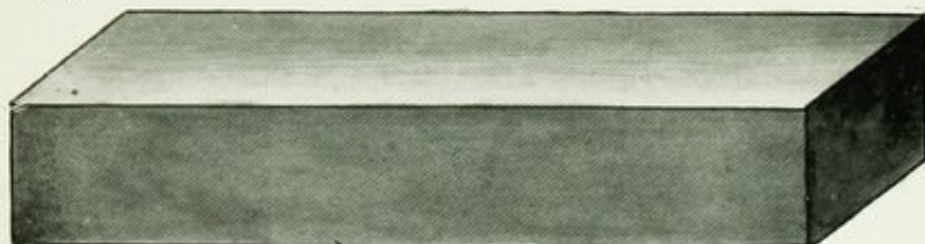
THE SURGICAL INSTRUMENTS OF THE HINDUS.

PLATE I.

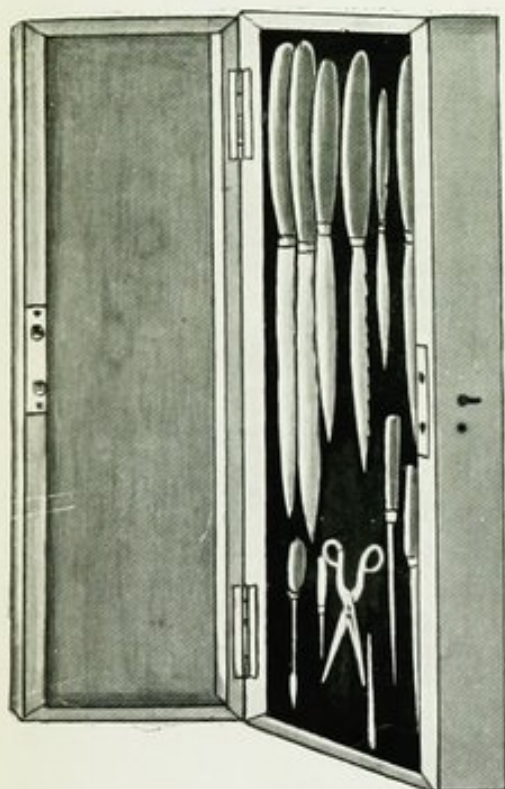
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The Surgical Instruments of the Hindus.

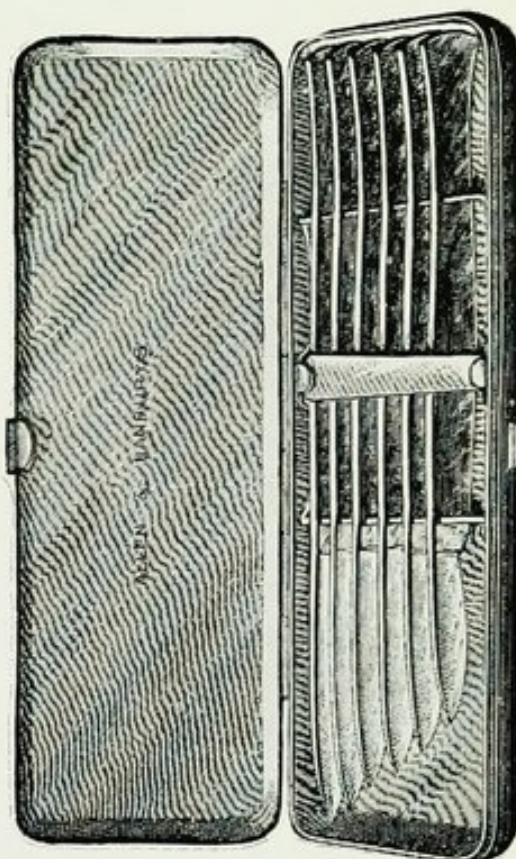
Plate I.



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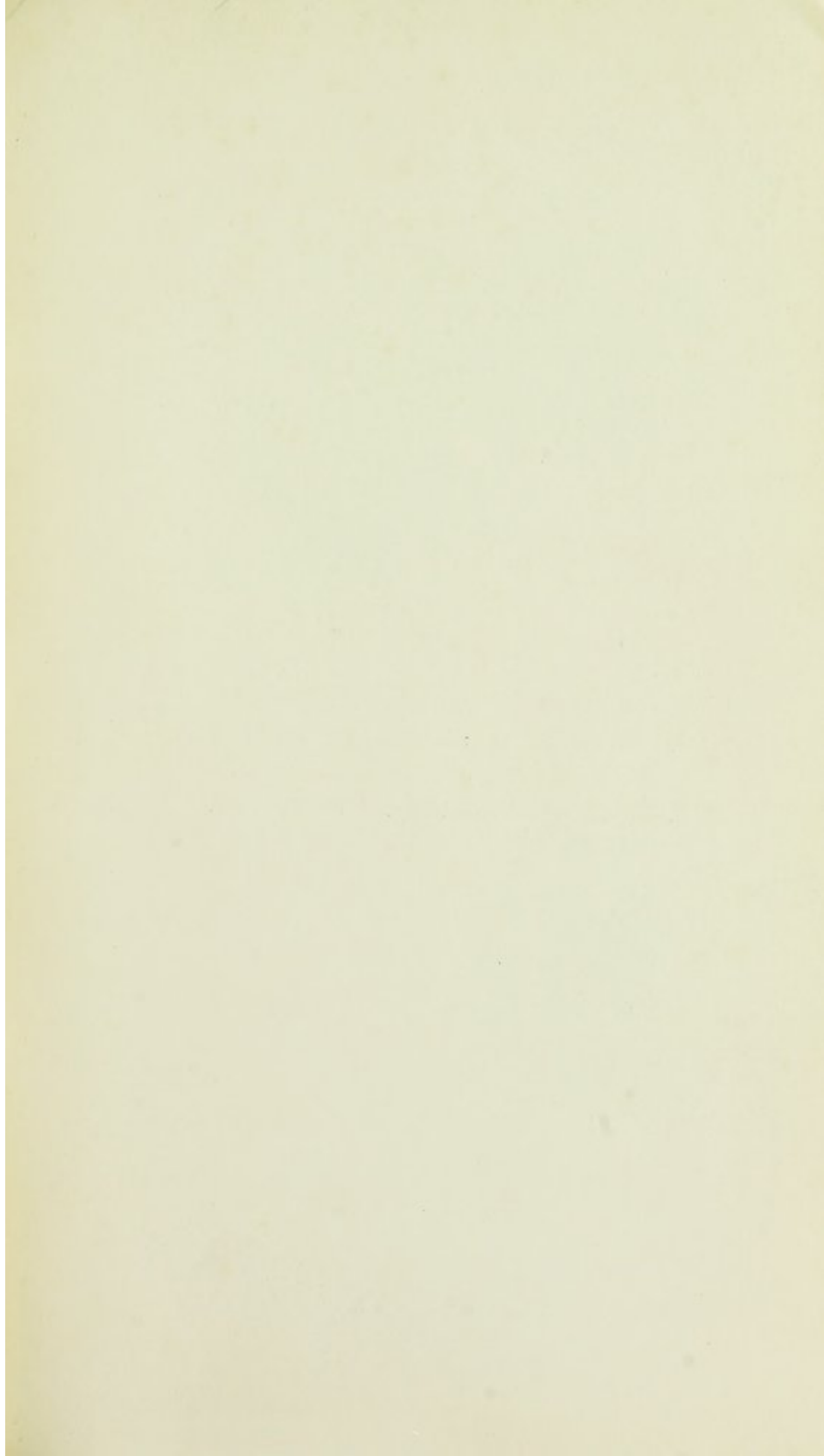


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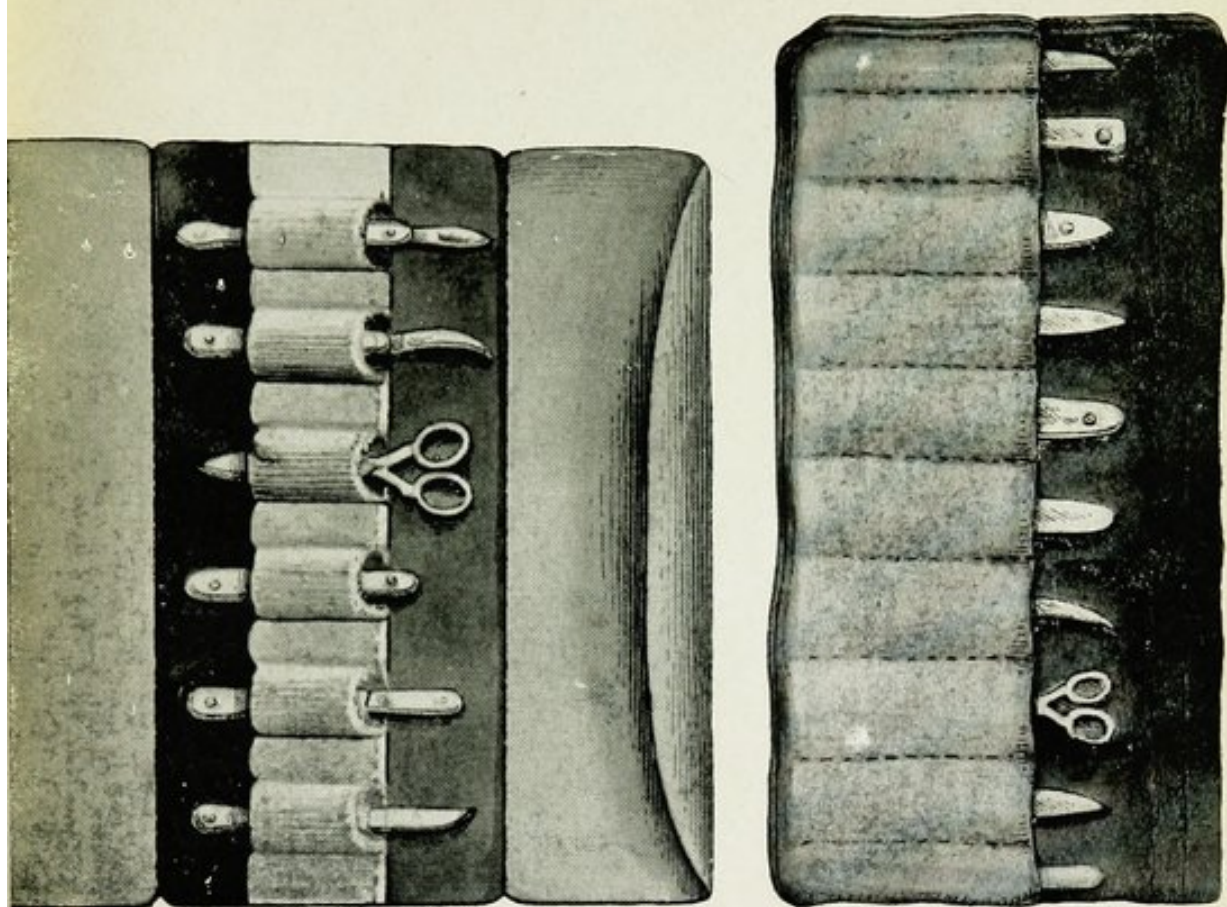
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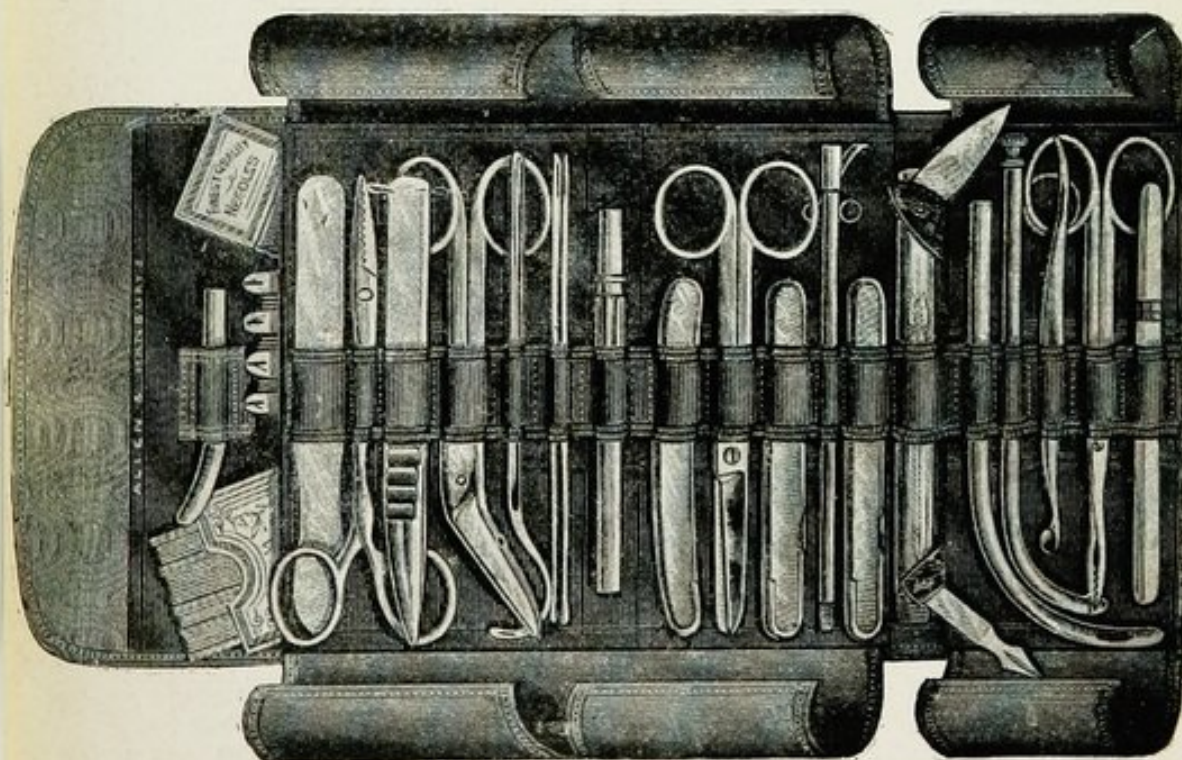
The Surgical Instruments of the Hindus.

Plate II



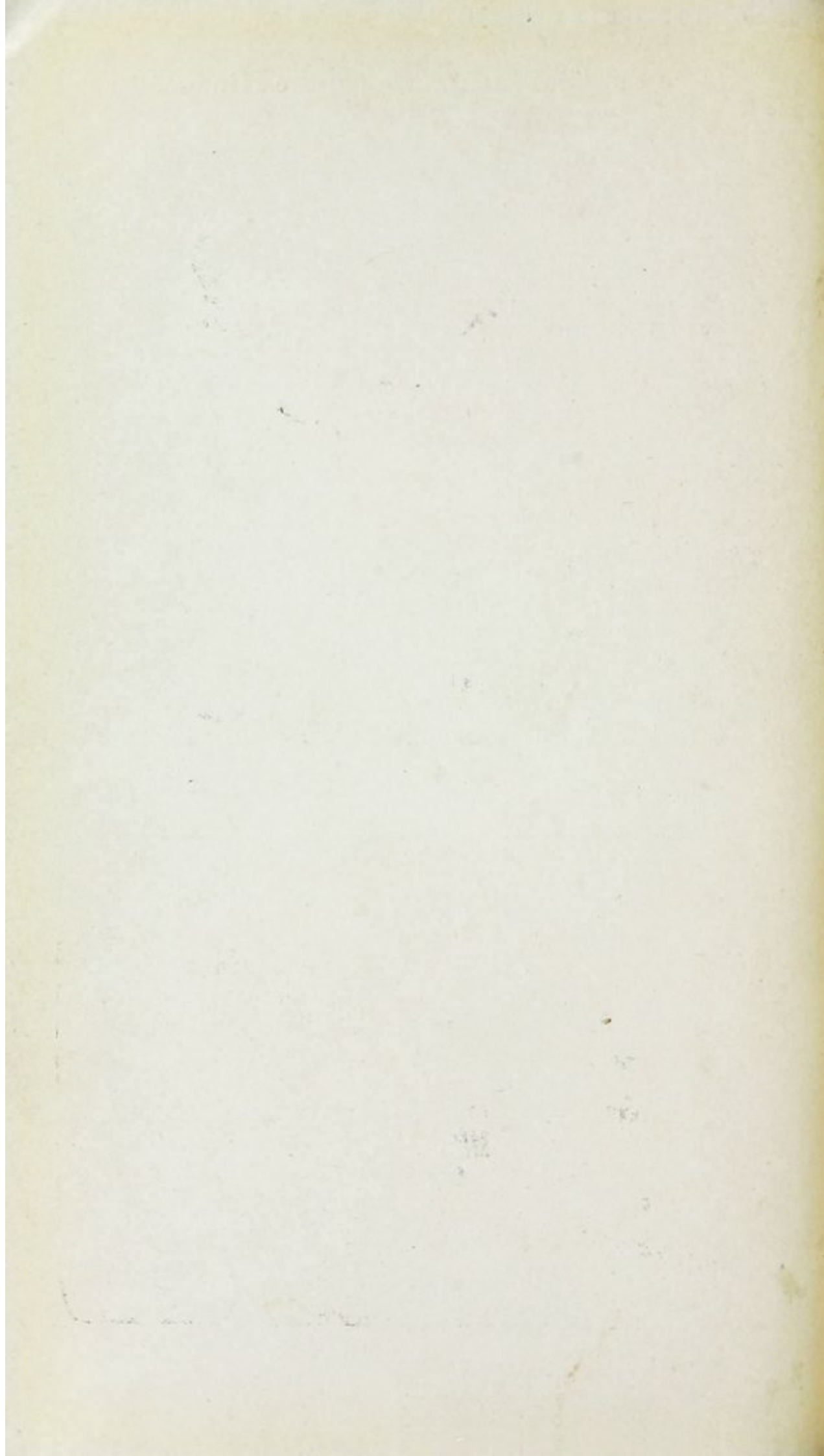
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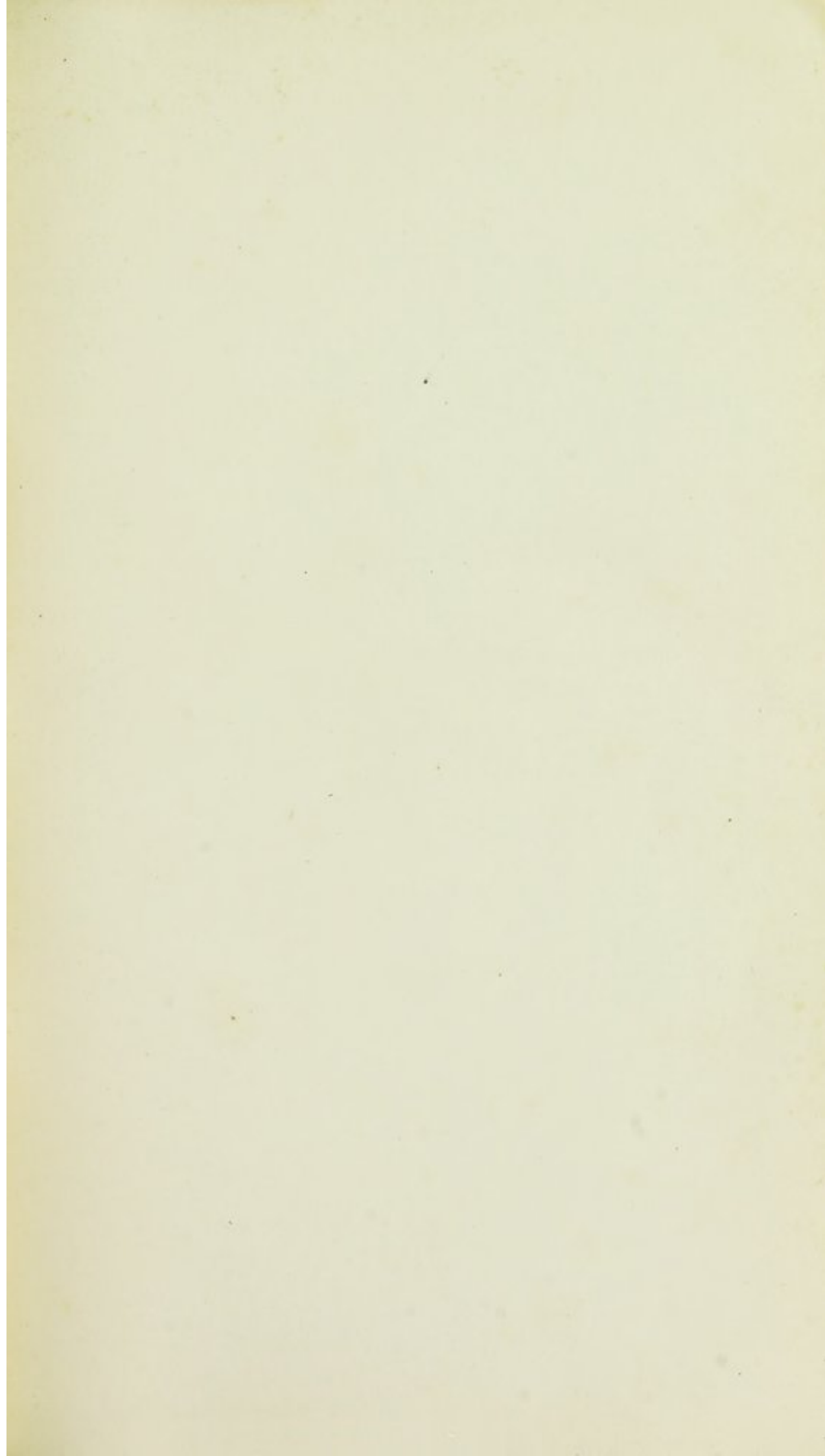


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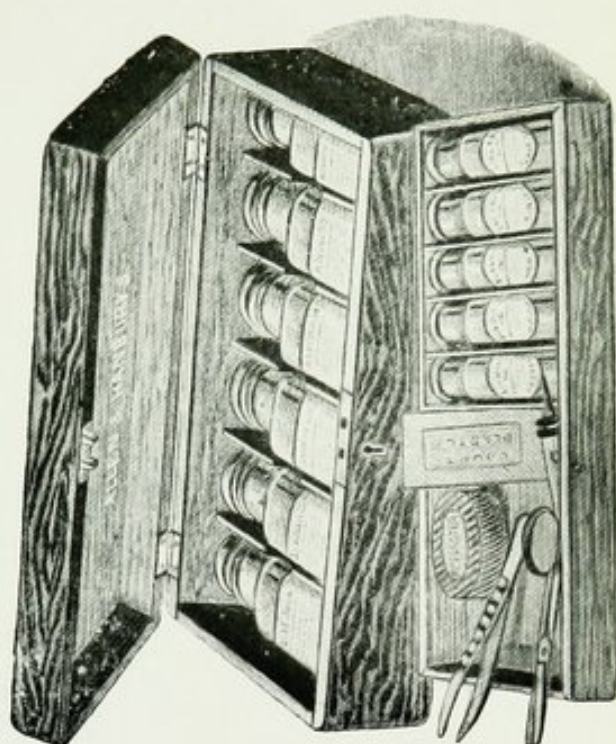


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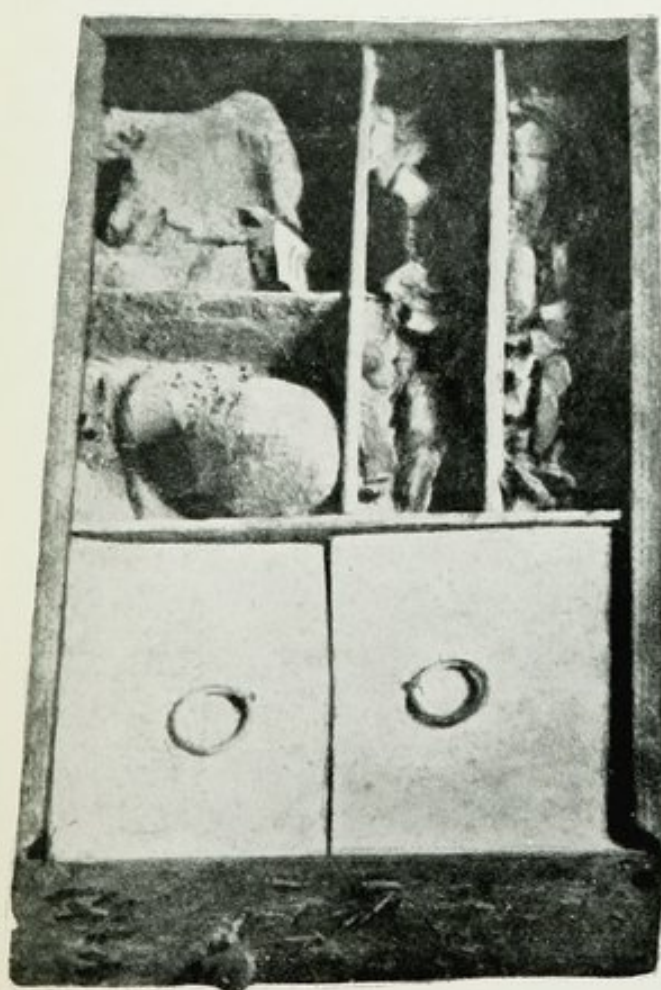
Plate III.



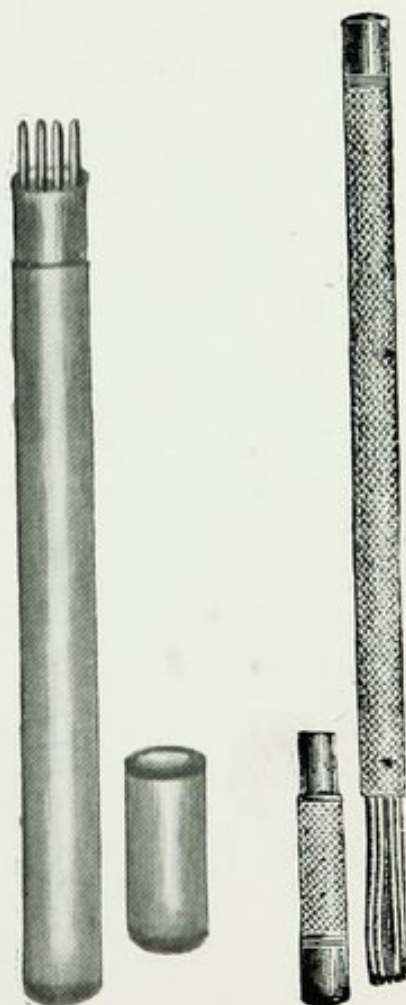
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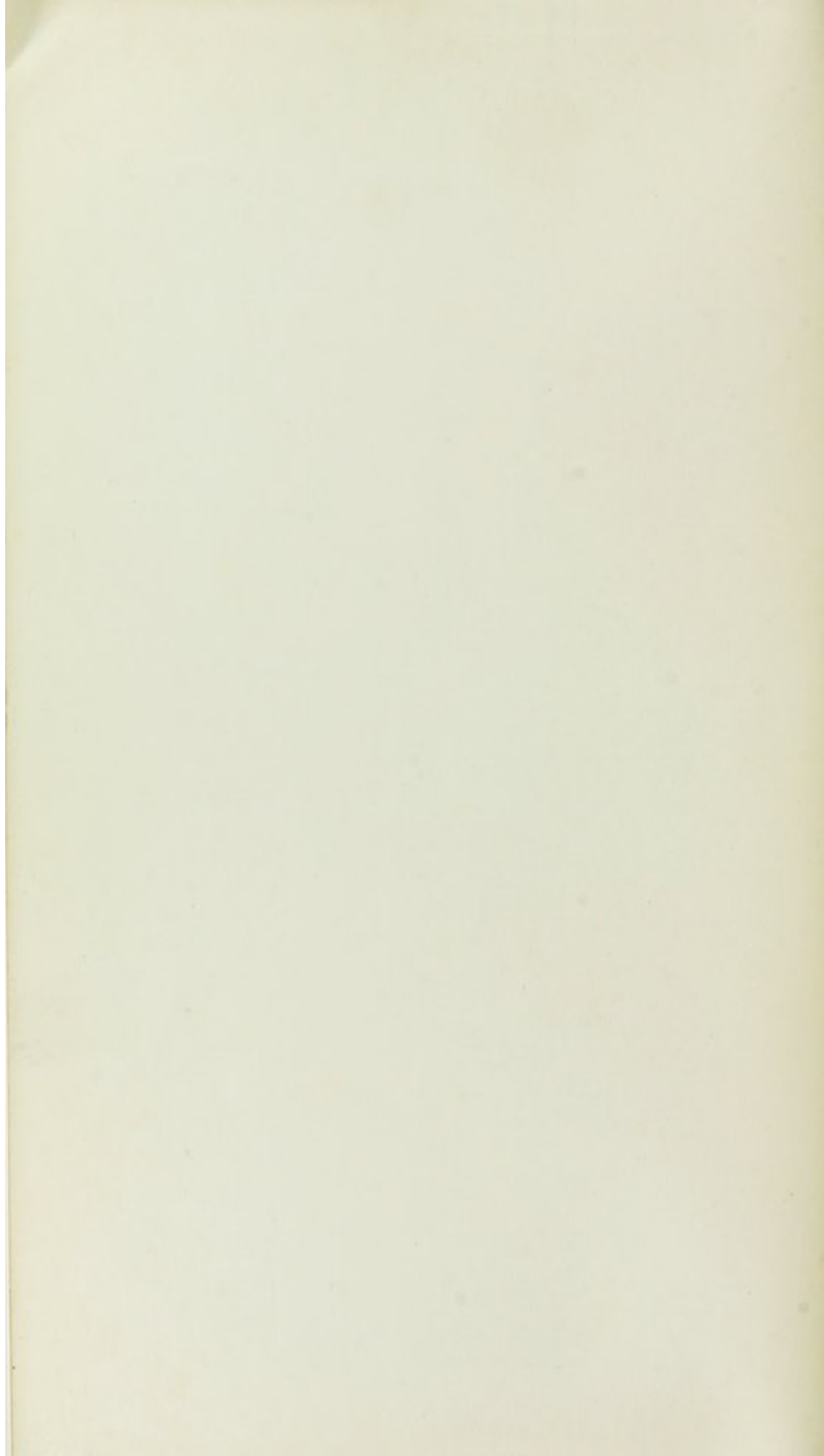


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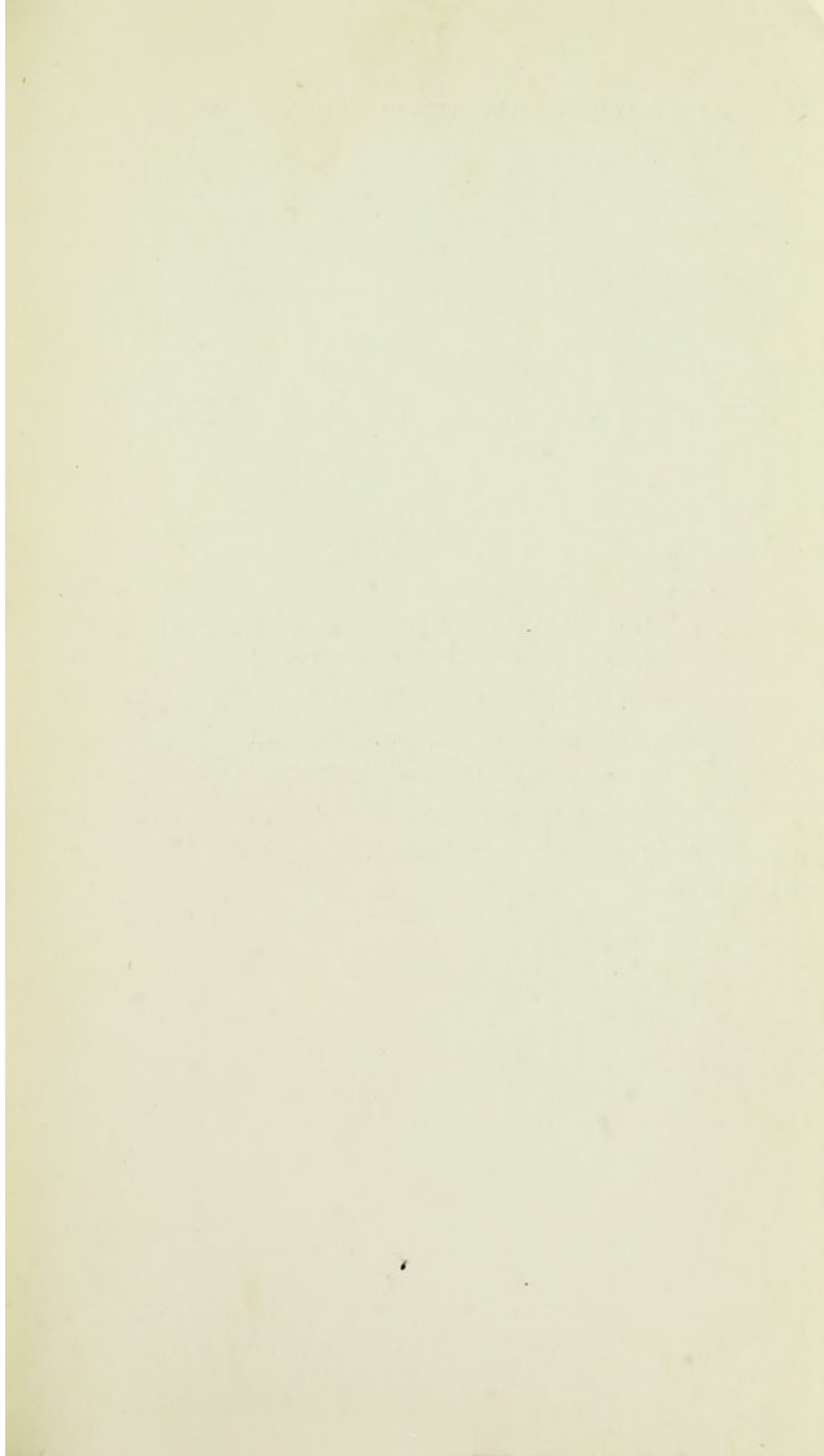


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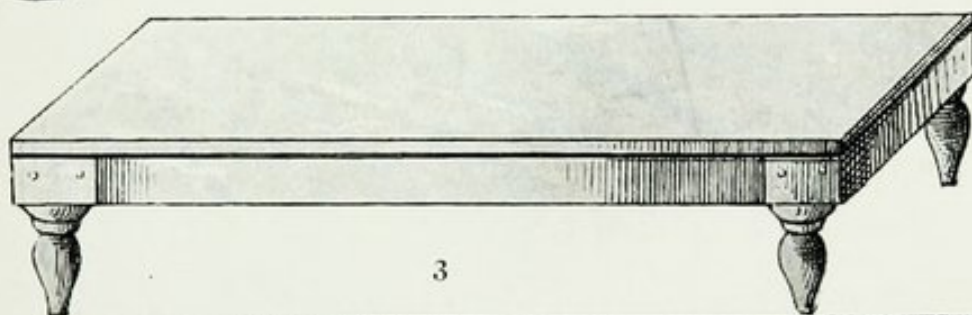
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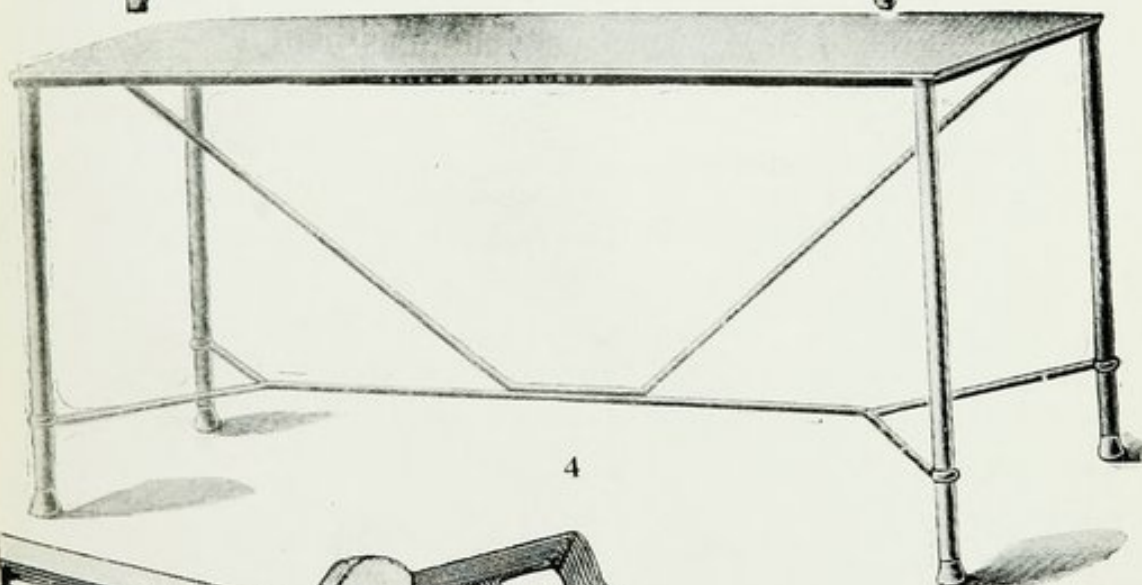
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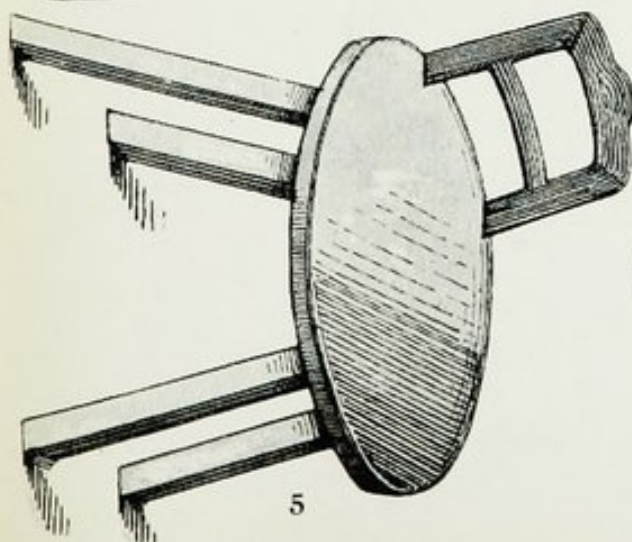
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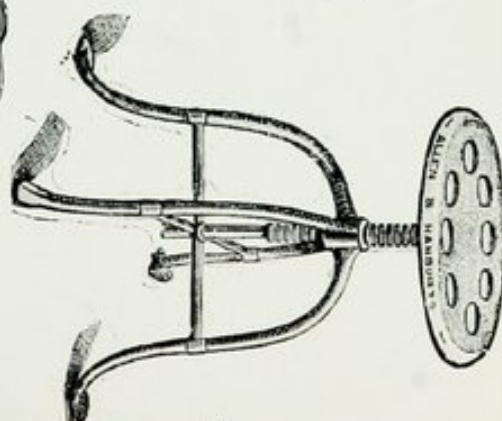
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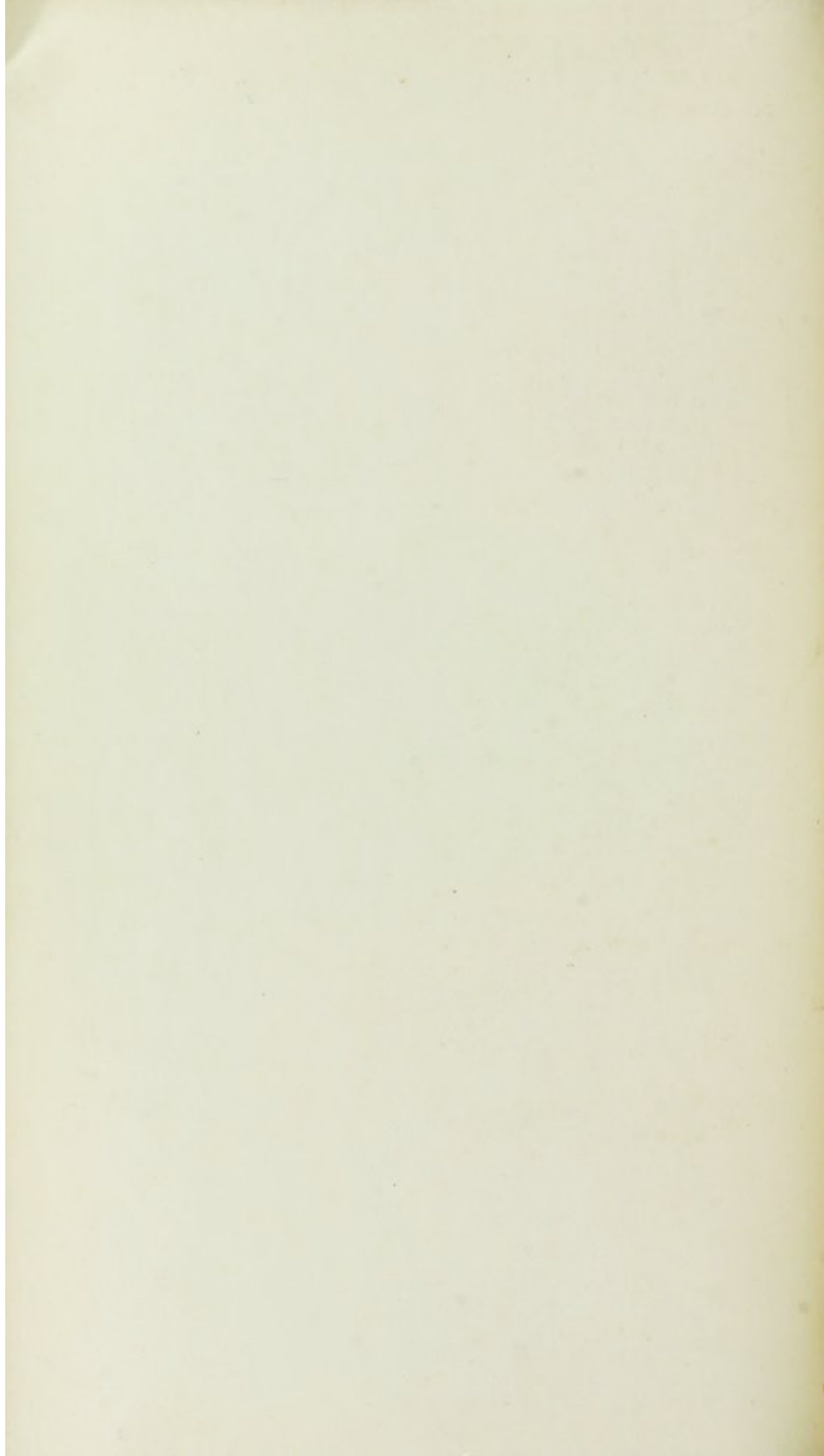


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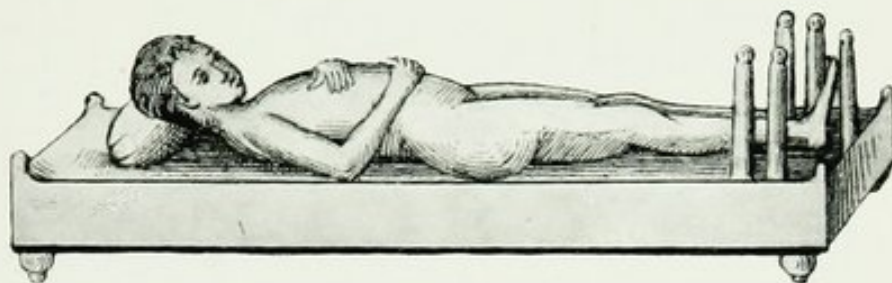
PLATE V.

KAPĀṬA-ŚAYANA OR FRACTURE-BED OF THE HINDUS.

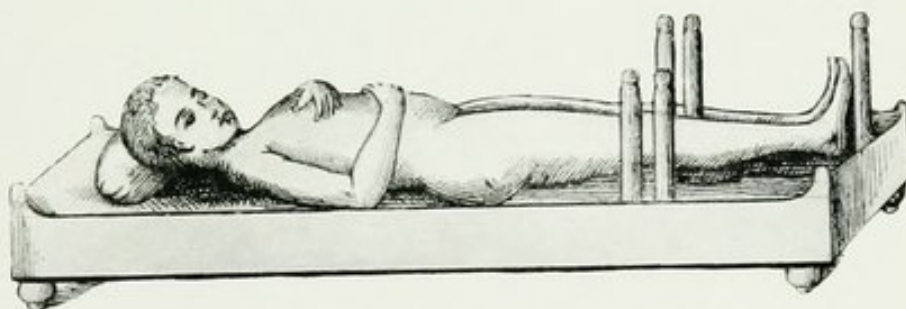
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The Surgical Instruments of the Hindus.

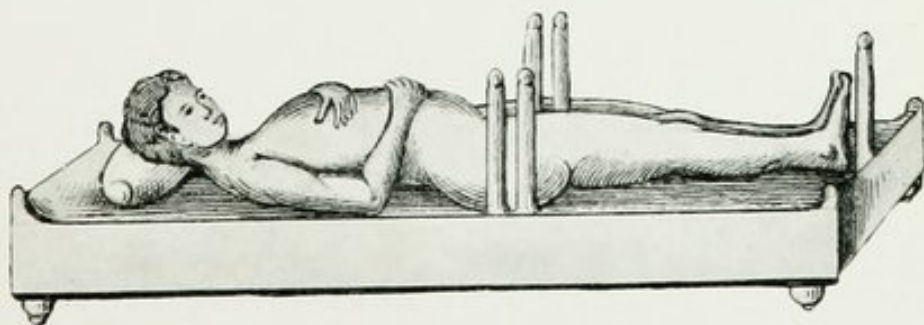
Plate V.



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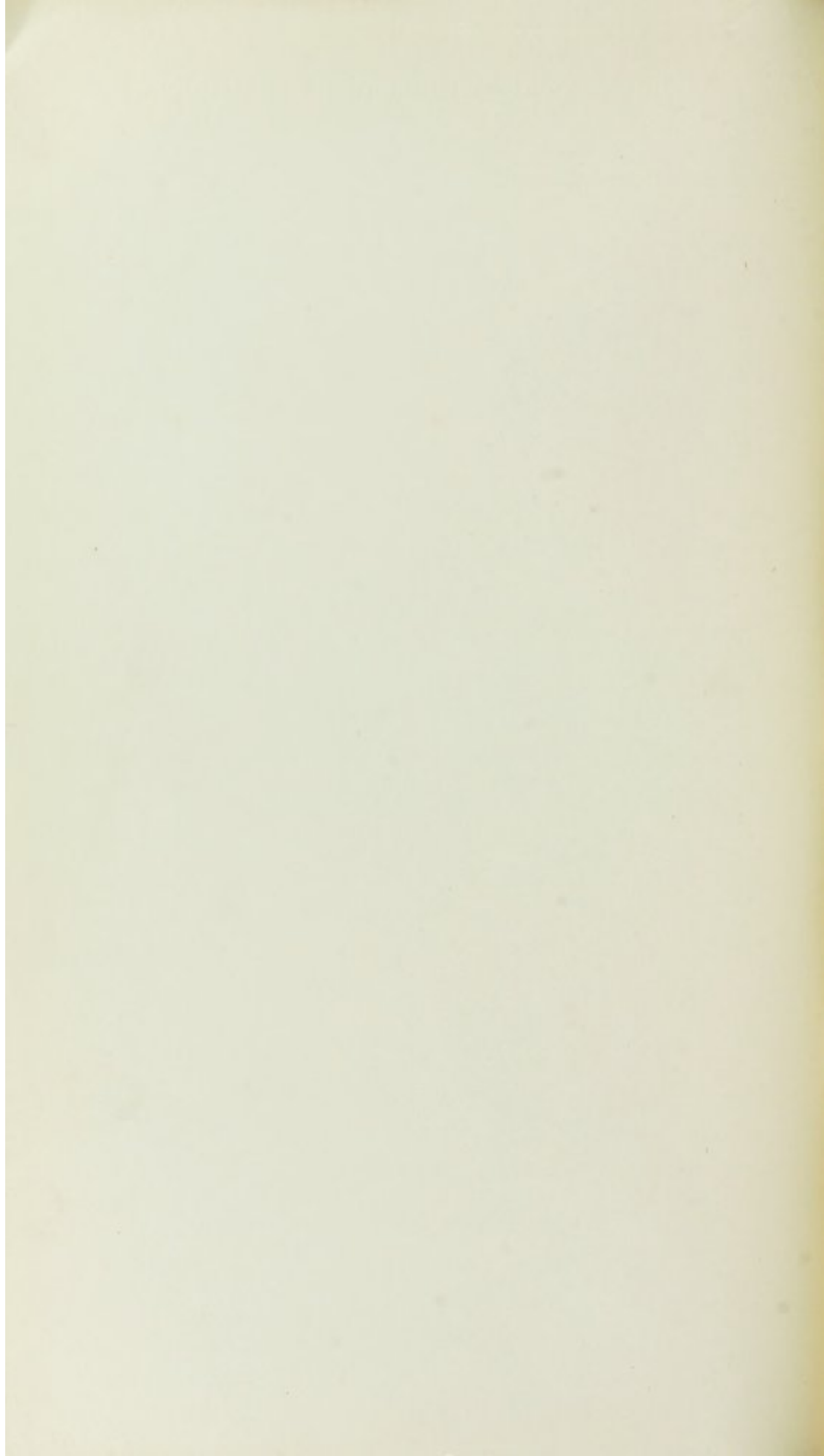


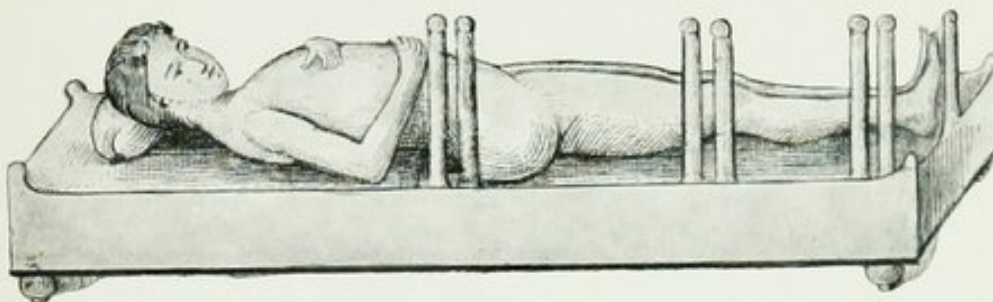


PLATE VI.

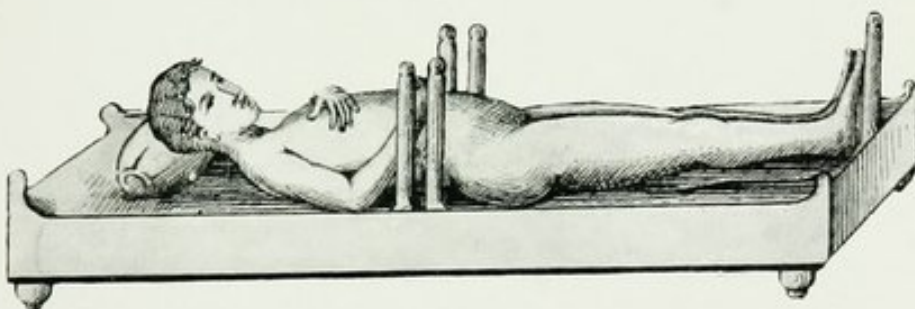
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The Surgical Instruments of the Hindus.

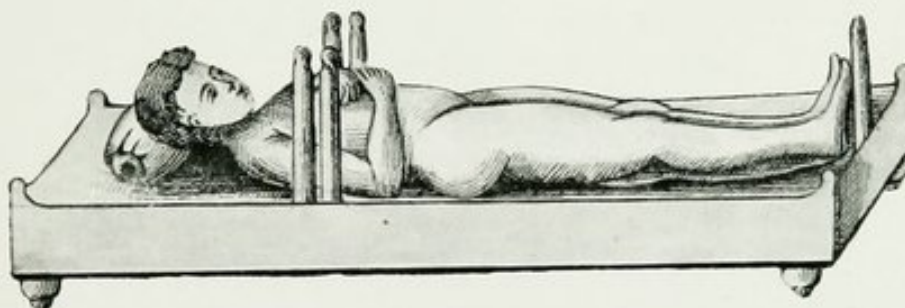
Plate VI.



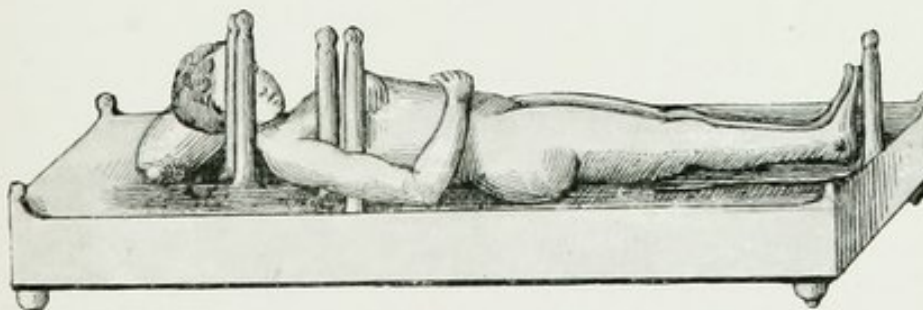
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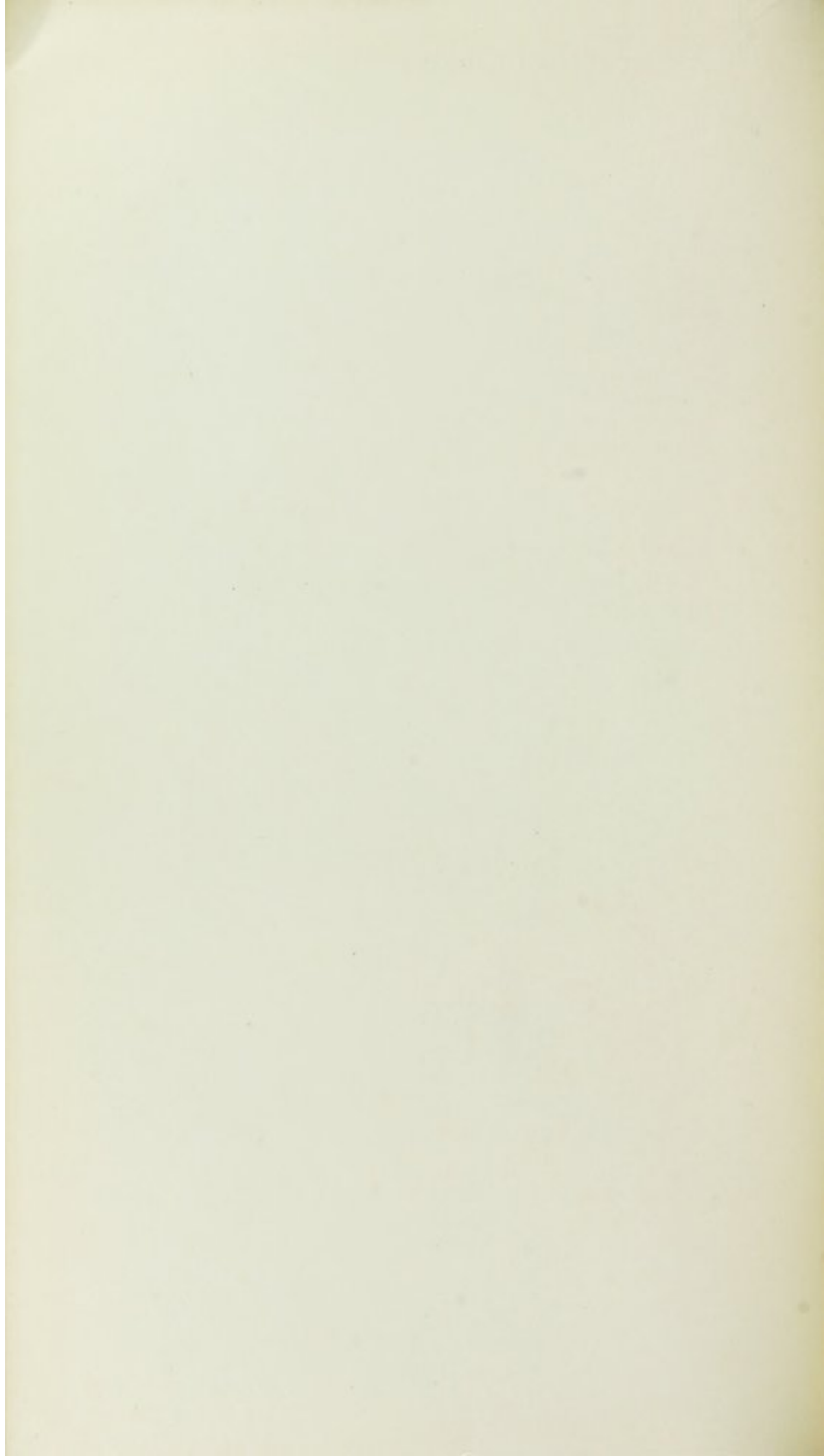
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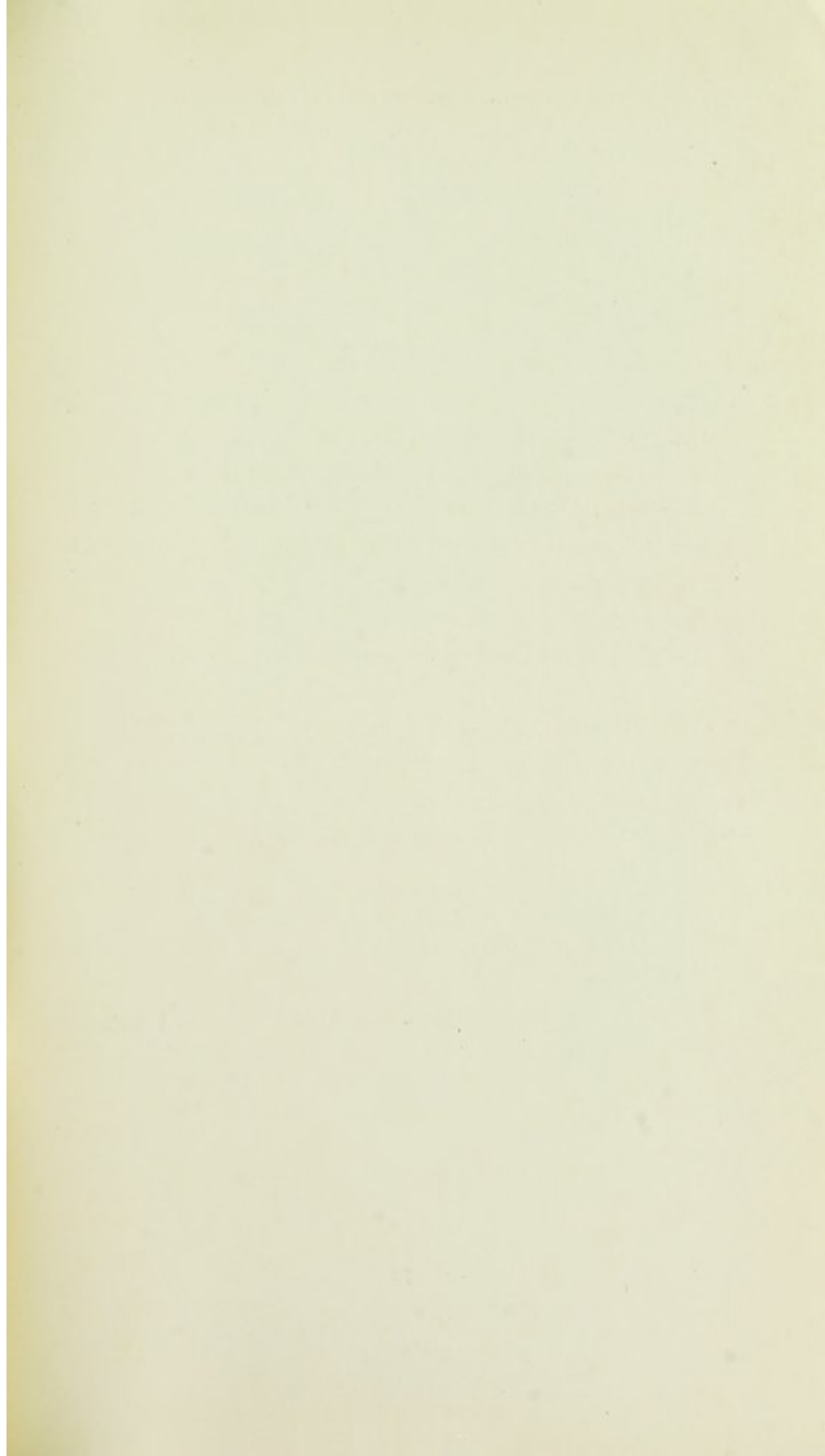


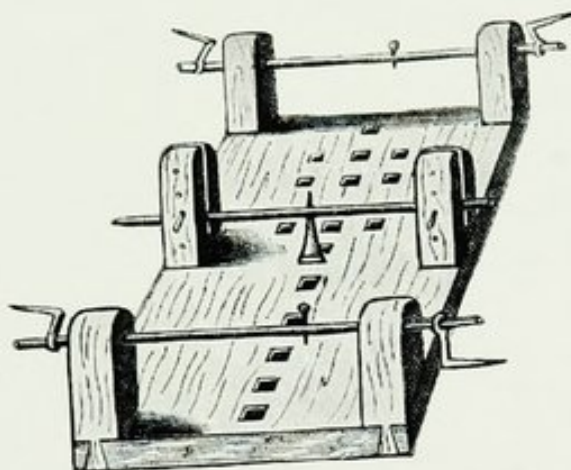
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E. A small post or pillar, fastened in the middle of the machine in a quadrangular hole.	
F. Pillars a foot long.	
G. A cross-beam laid on the pillars FF, which can be placed at different heights by means of holes in the pillars.	

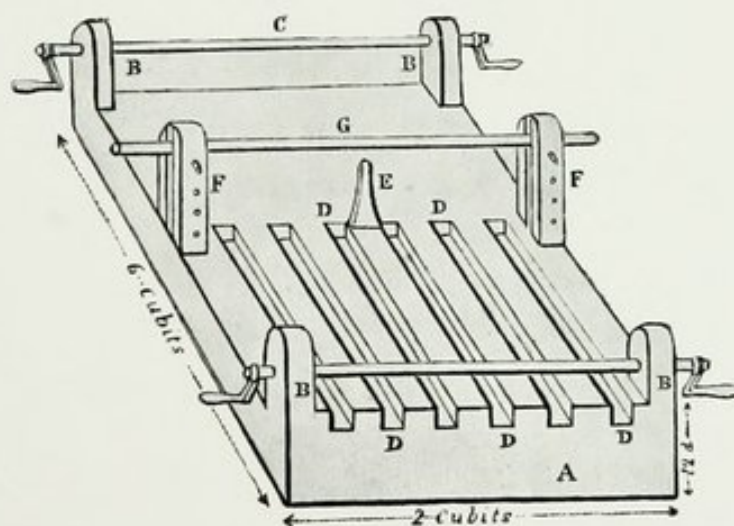
Adams. Vol. II. Pl. IV. Fig. 1 & 2.

The Surgical Instruments of the Hindus.

Plate VII.



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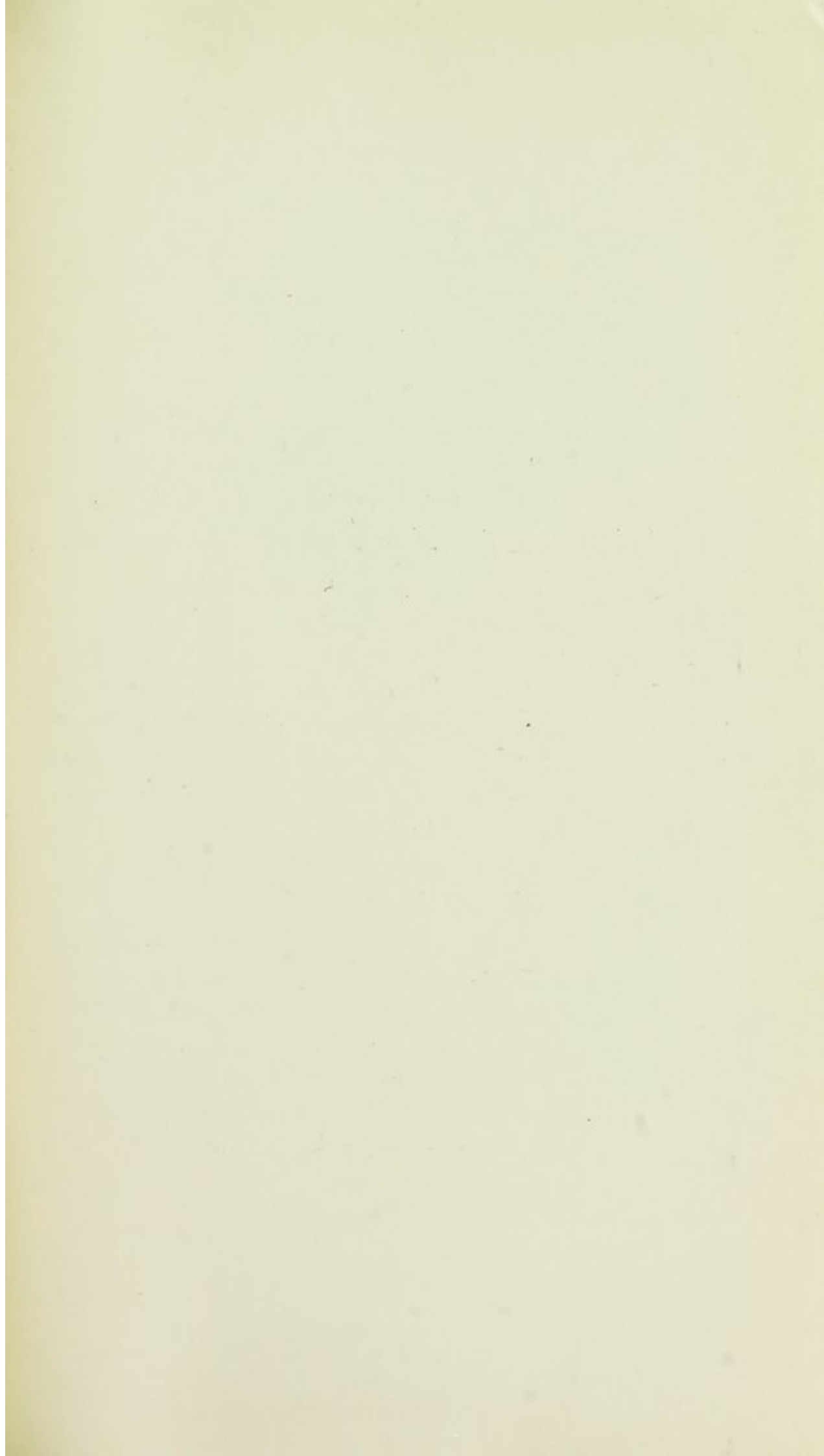


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B. Another lever, held by an assistant, put into one of the grooves of the machine, and intended to act against lever A.

C. Groove in which the end of the lever A takes its point of support.

D. The luxated member.

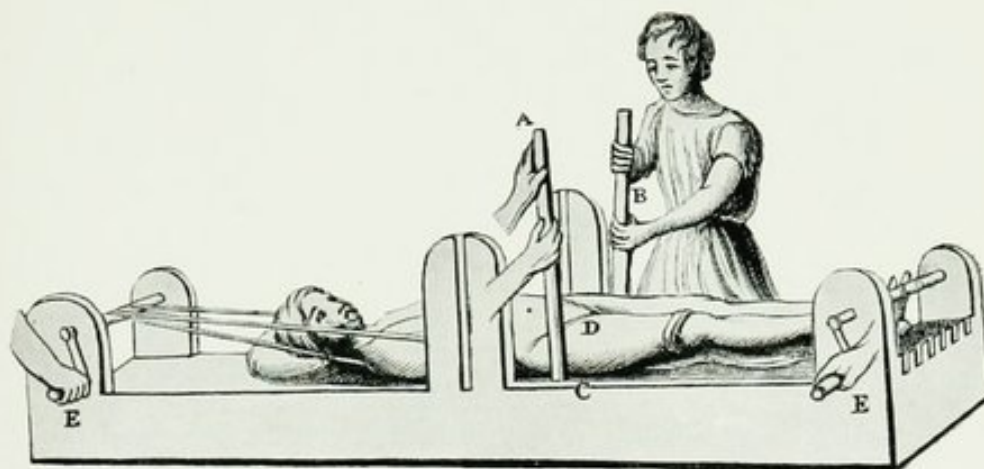
EE. Extension and counter-extension.

Adams. Vol. II. Pl. V. Fig. 1.

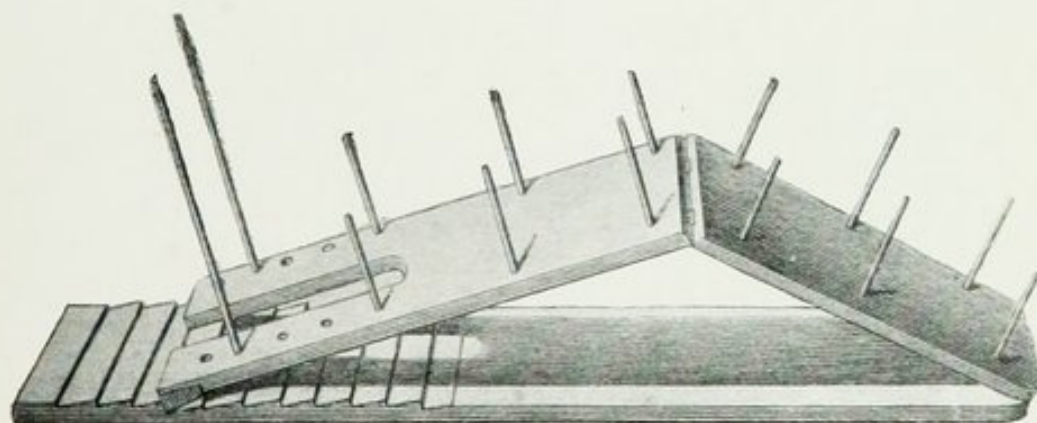
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The Surgical Instruments of the Hindus.

Plate VJII.



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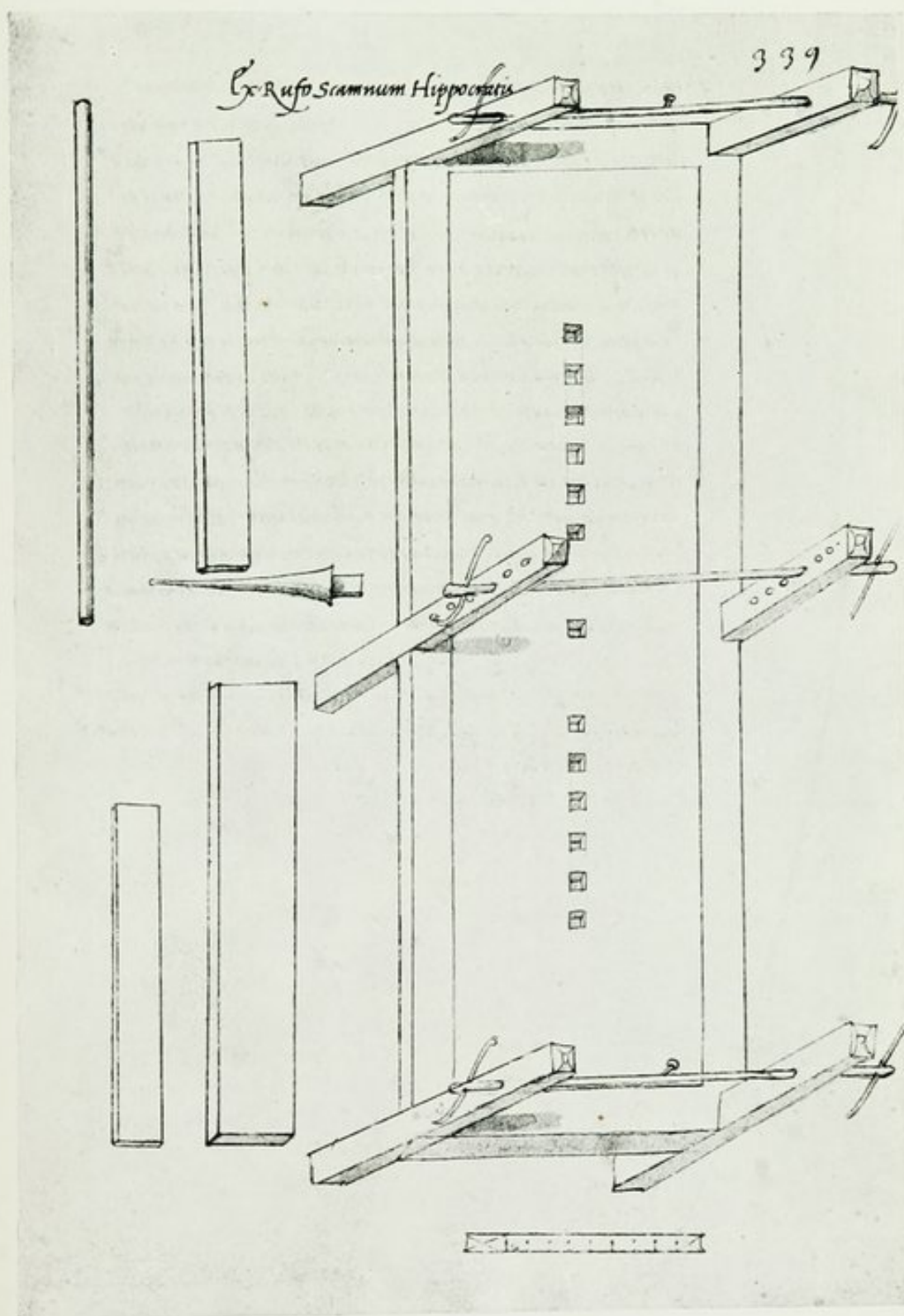


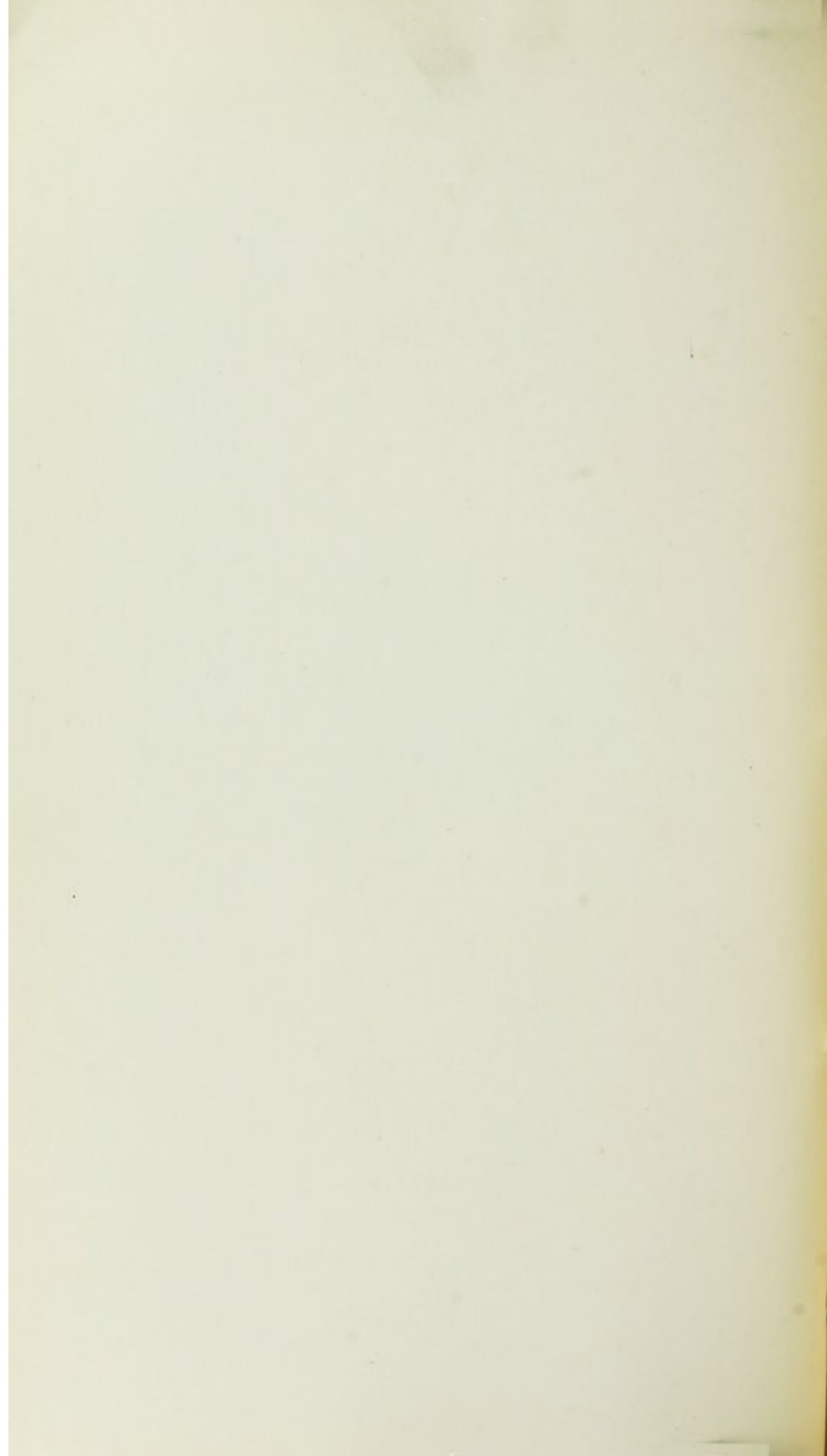
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Pl. XCV.	89

The Surgical Instruments of the Hindus.

Plate IX.





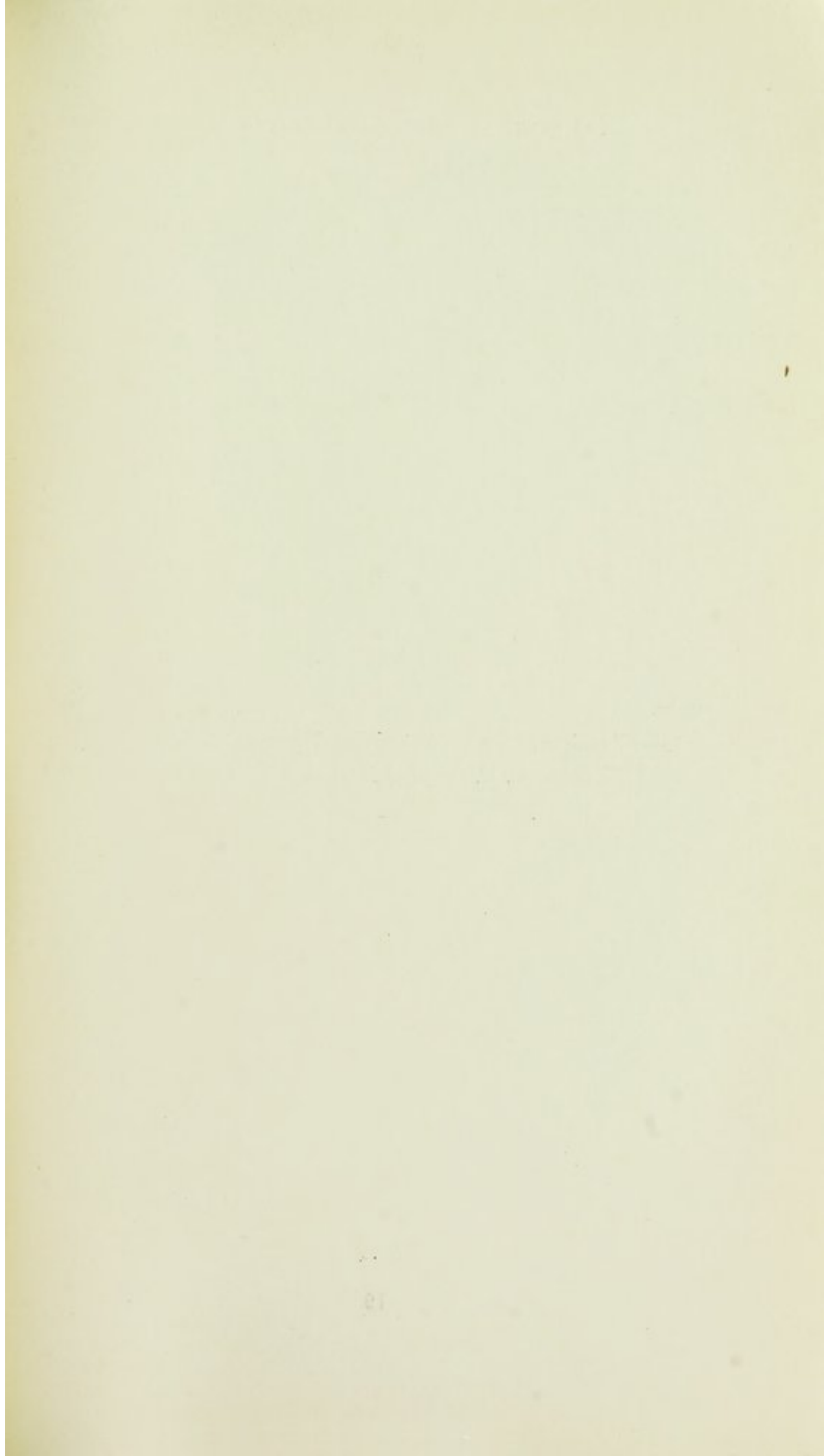
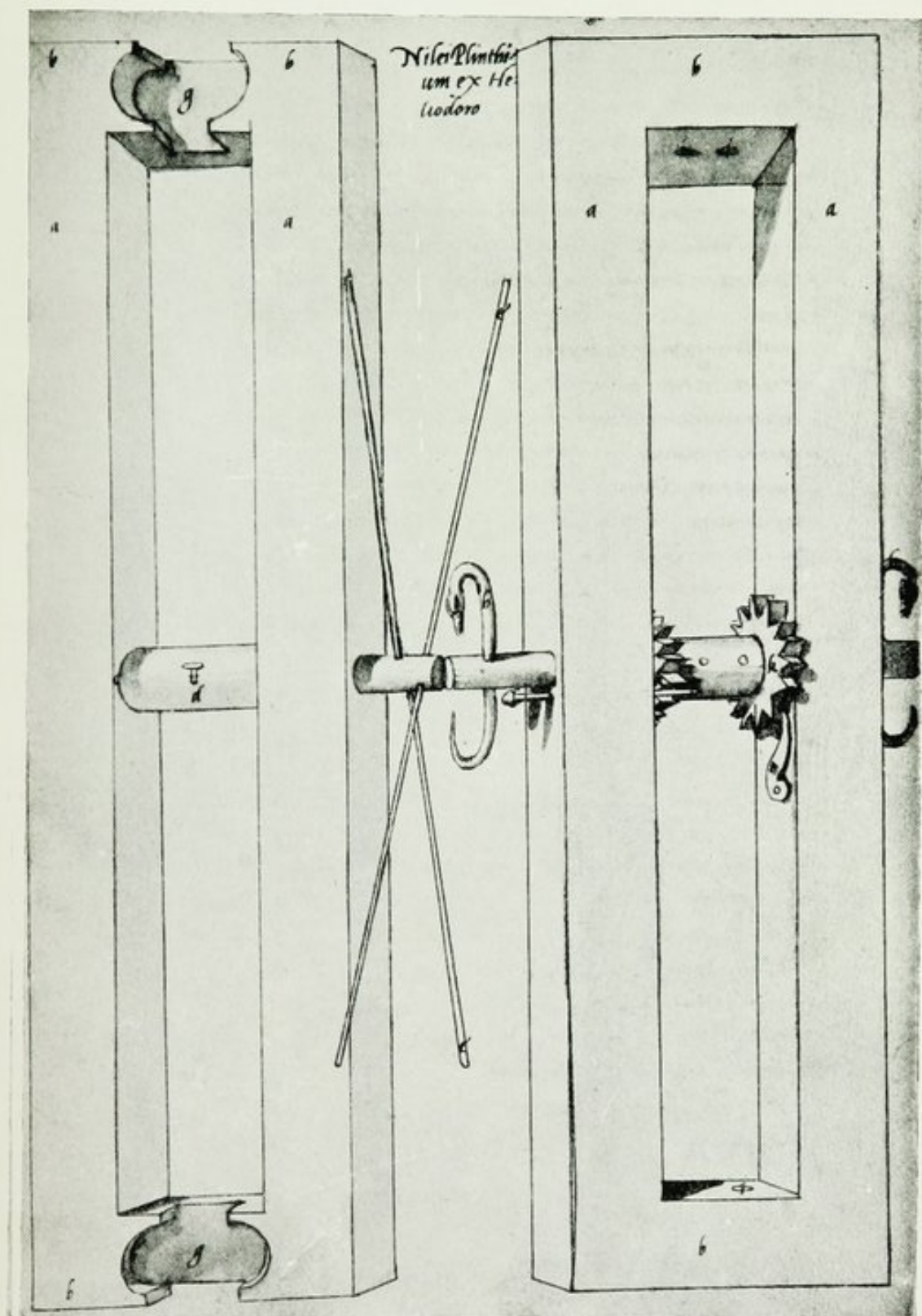


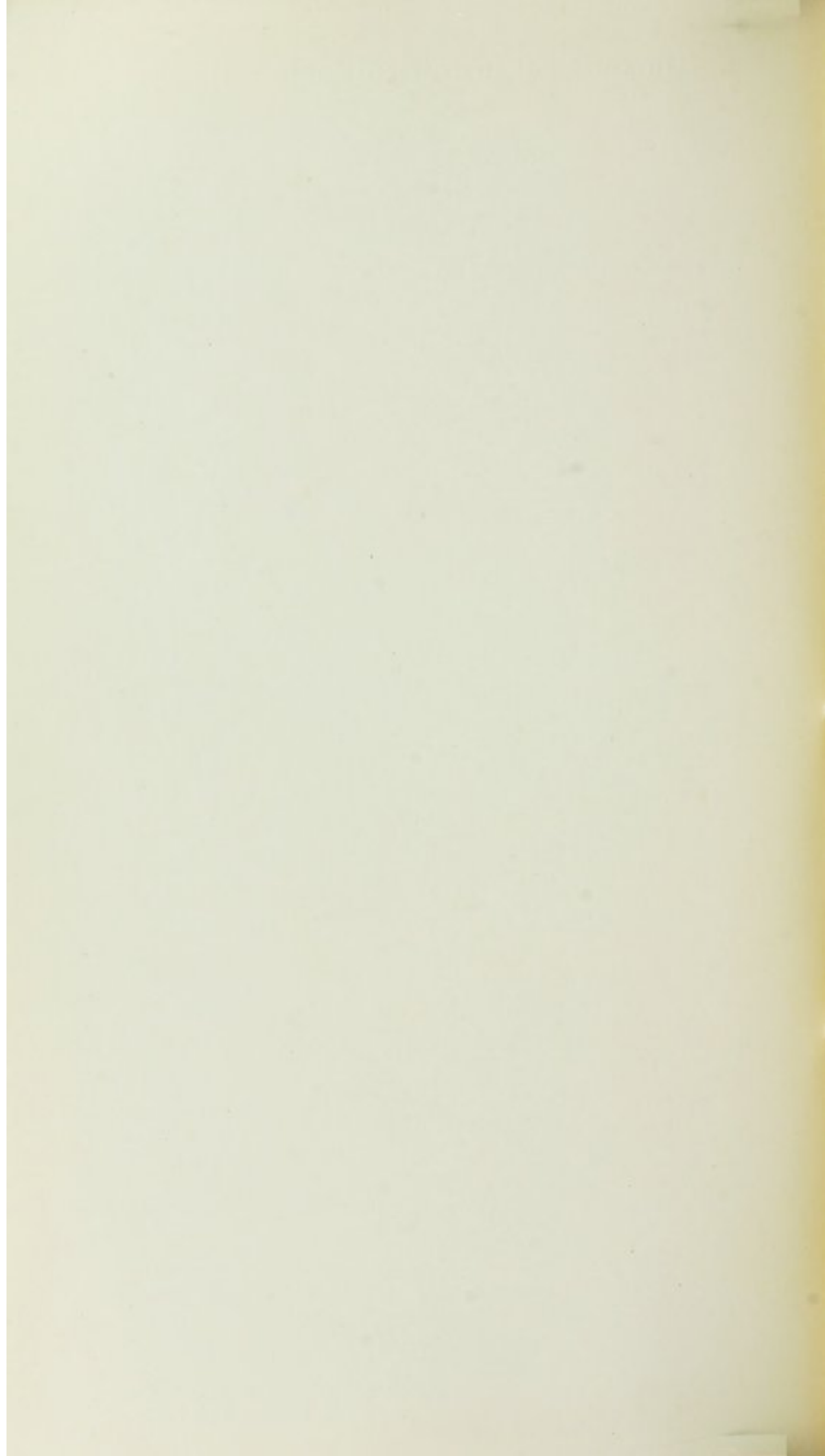
PLATE X.

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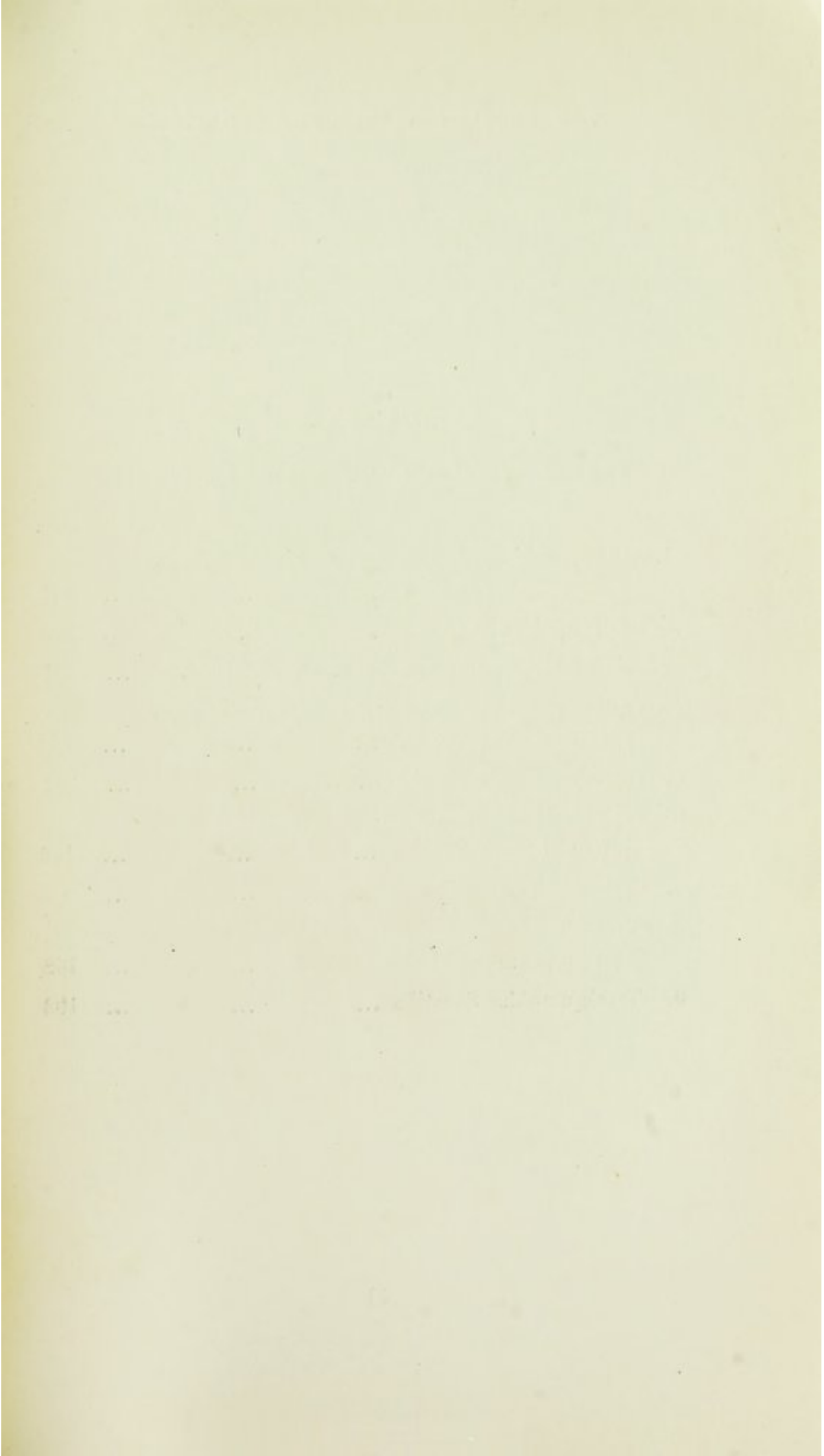


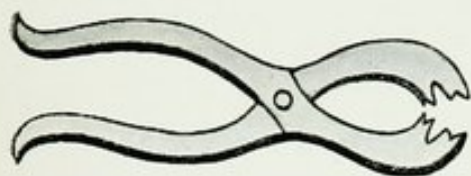
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The Surgical Instruments of the Hindus.

Plate XI



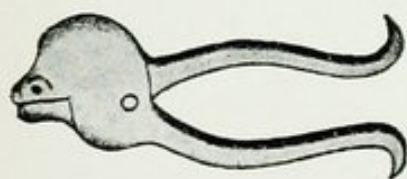
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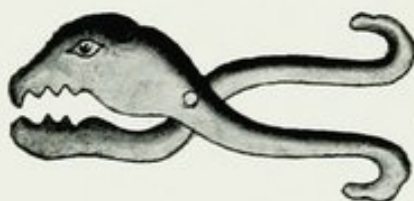
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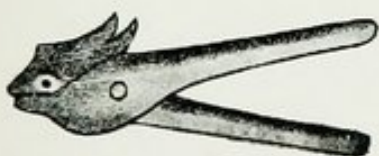
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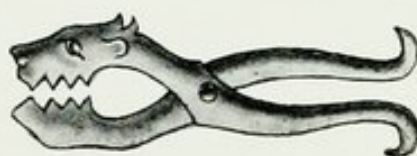
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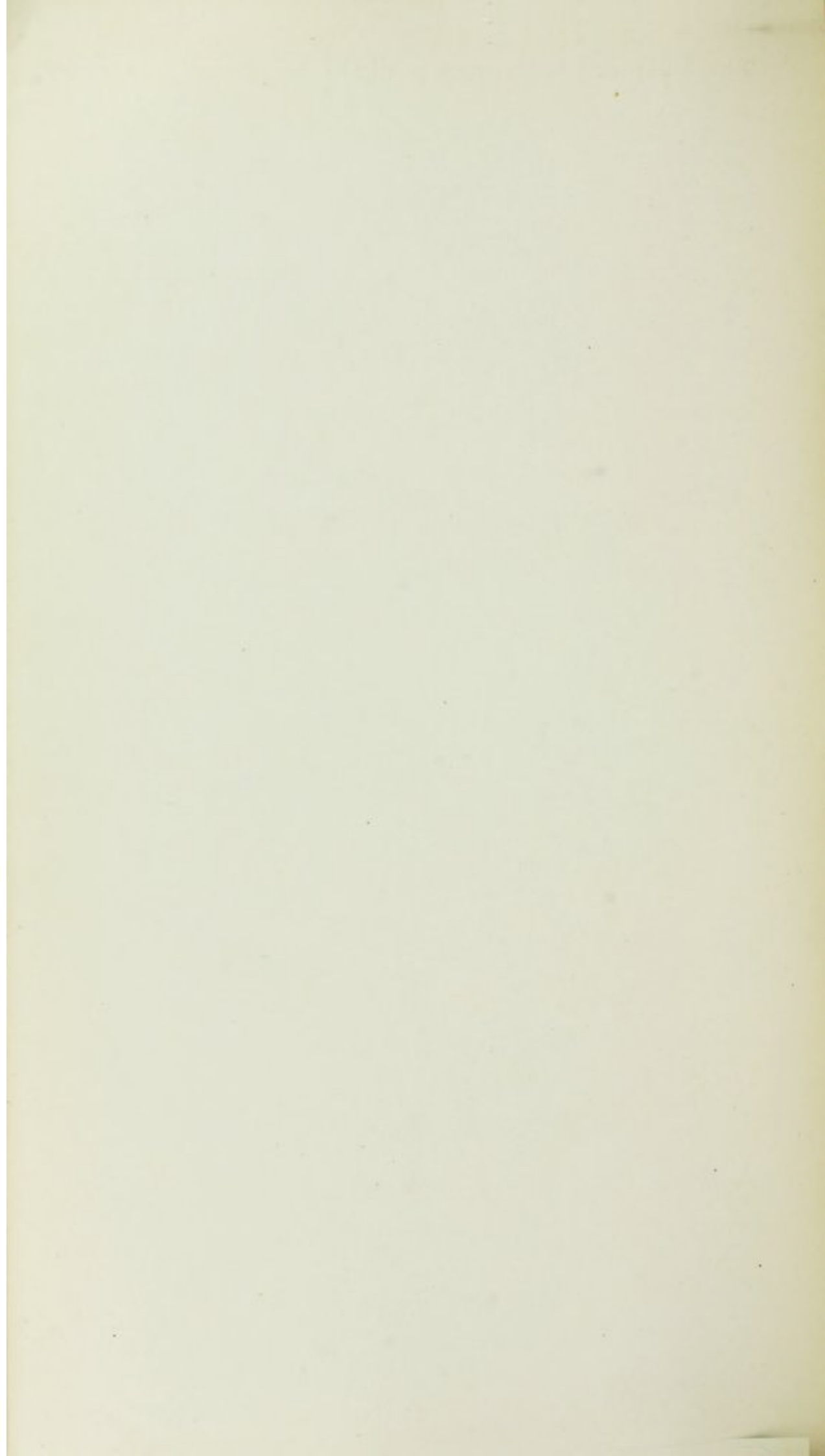


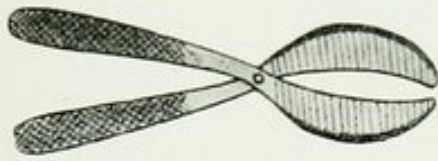
PLATE XII.

THE SVASTIKA YANTRA OR CRUCIFORM INSTRUMENTS.

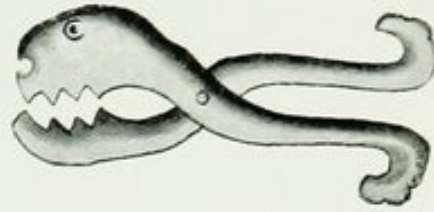
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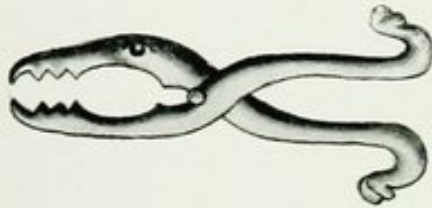
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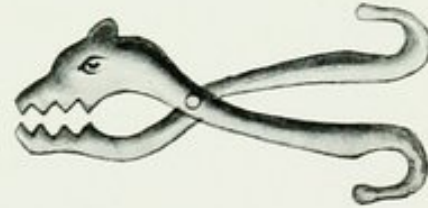
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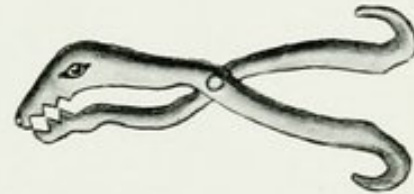
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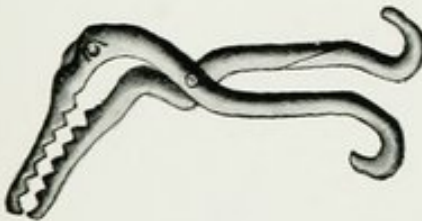
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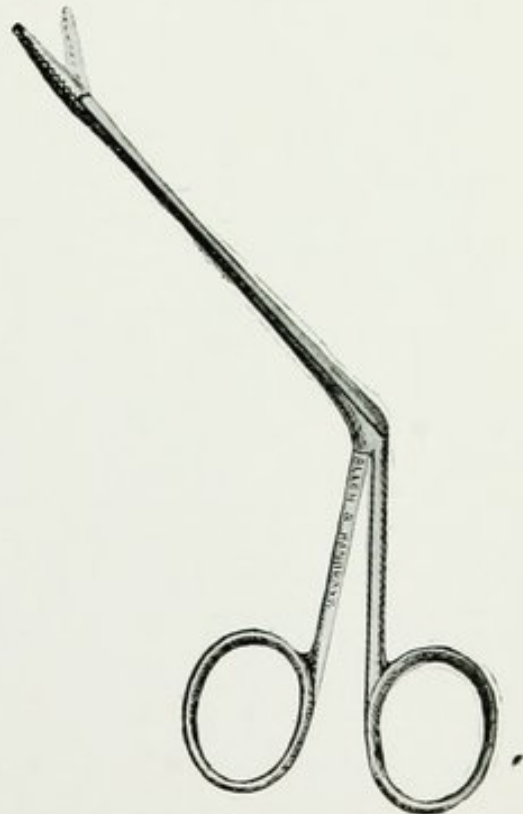
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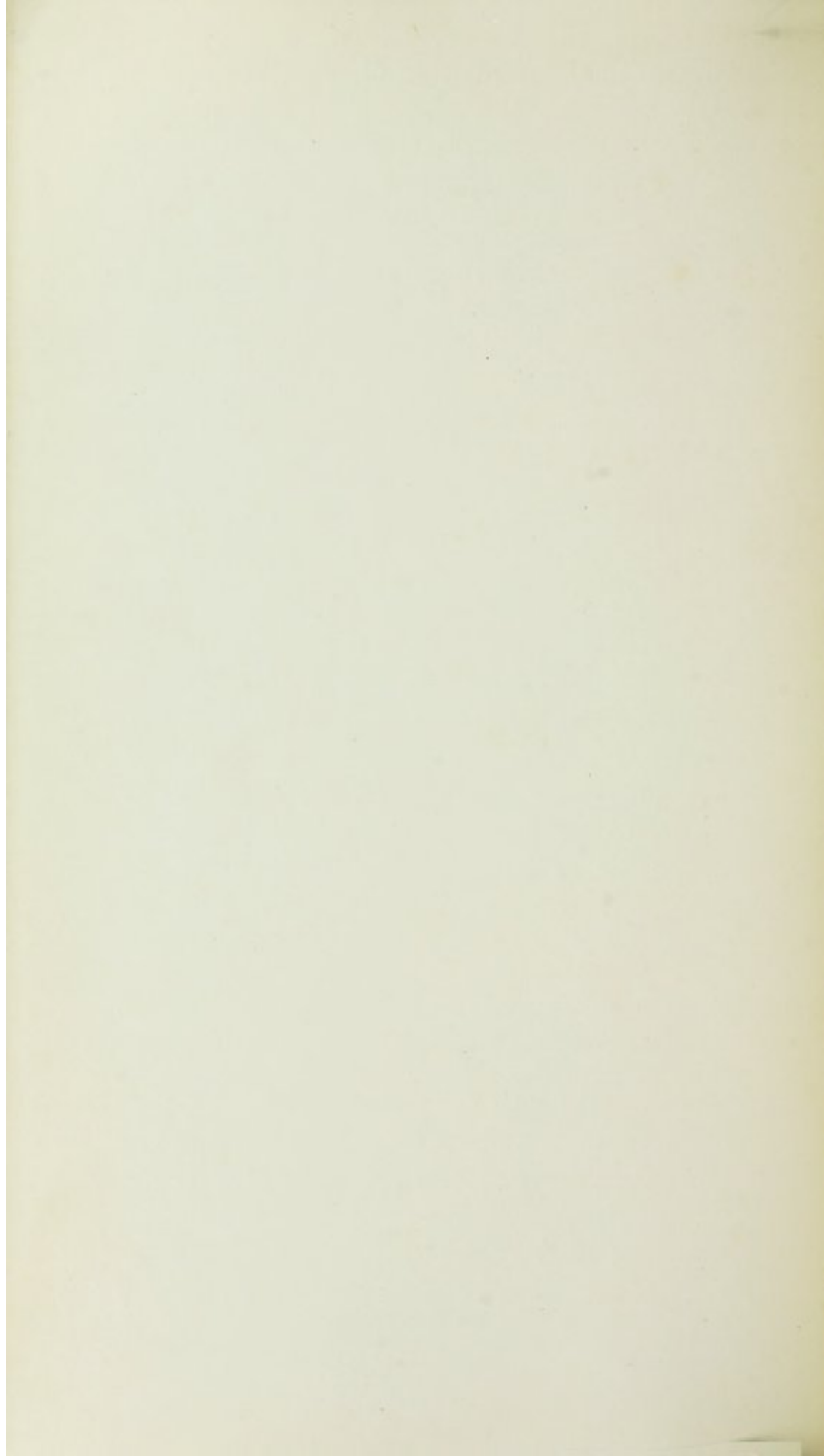
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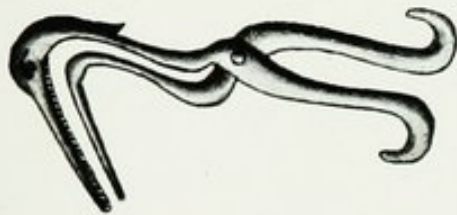
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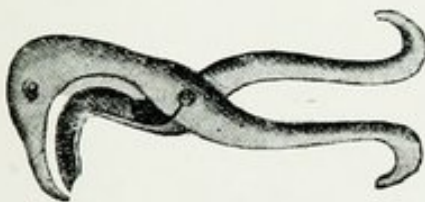
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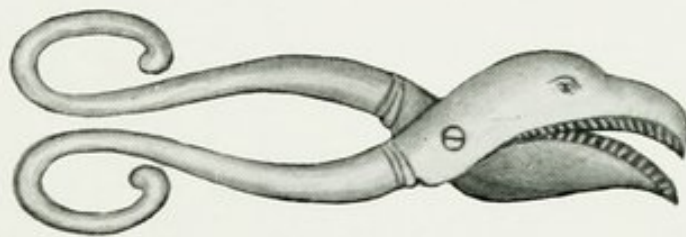
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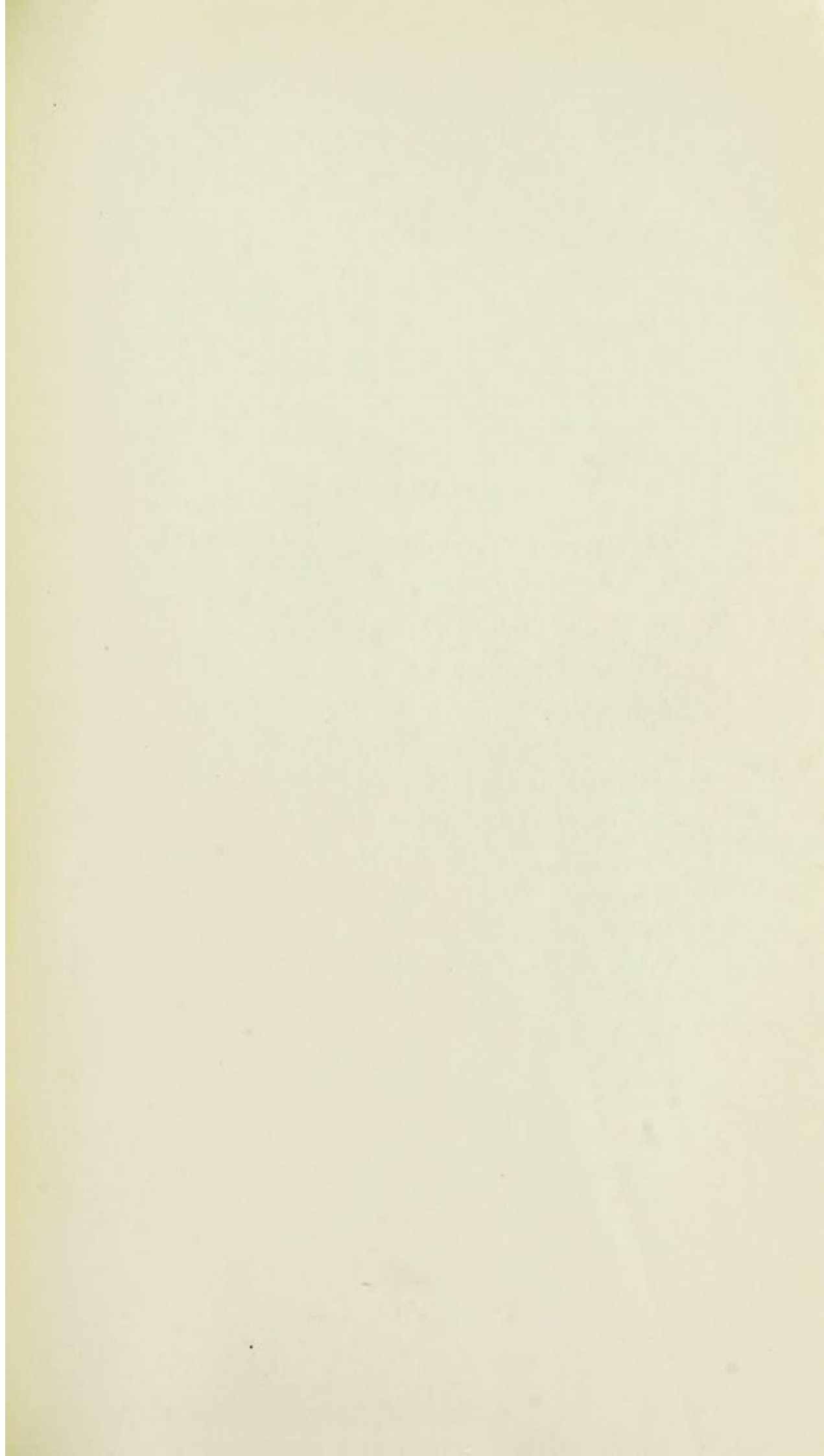


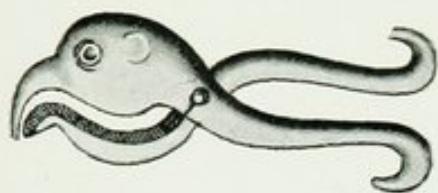
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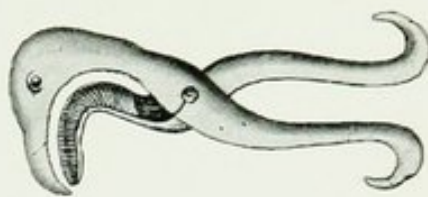
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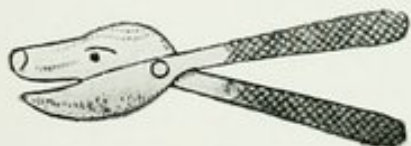
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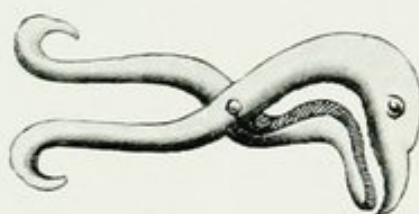
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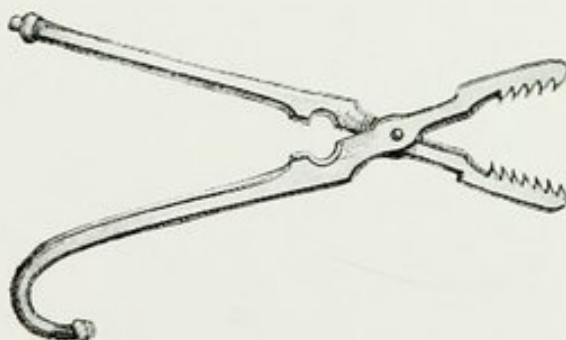
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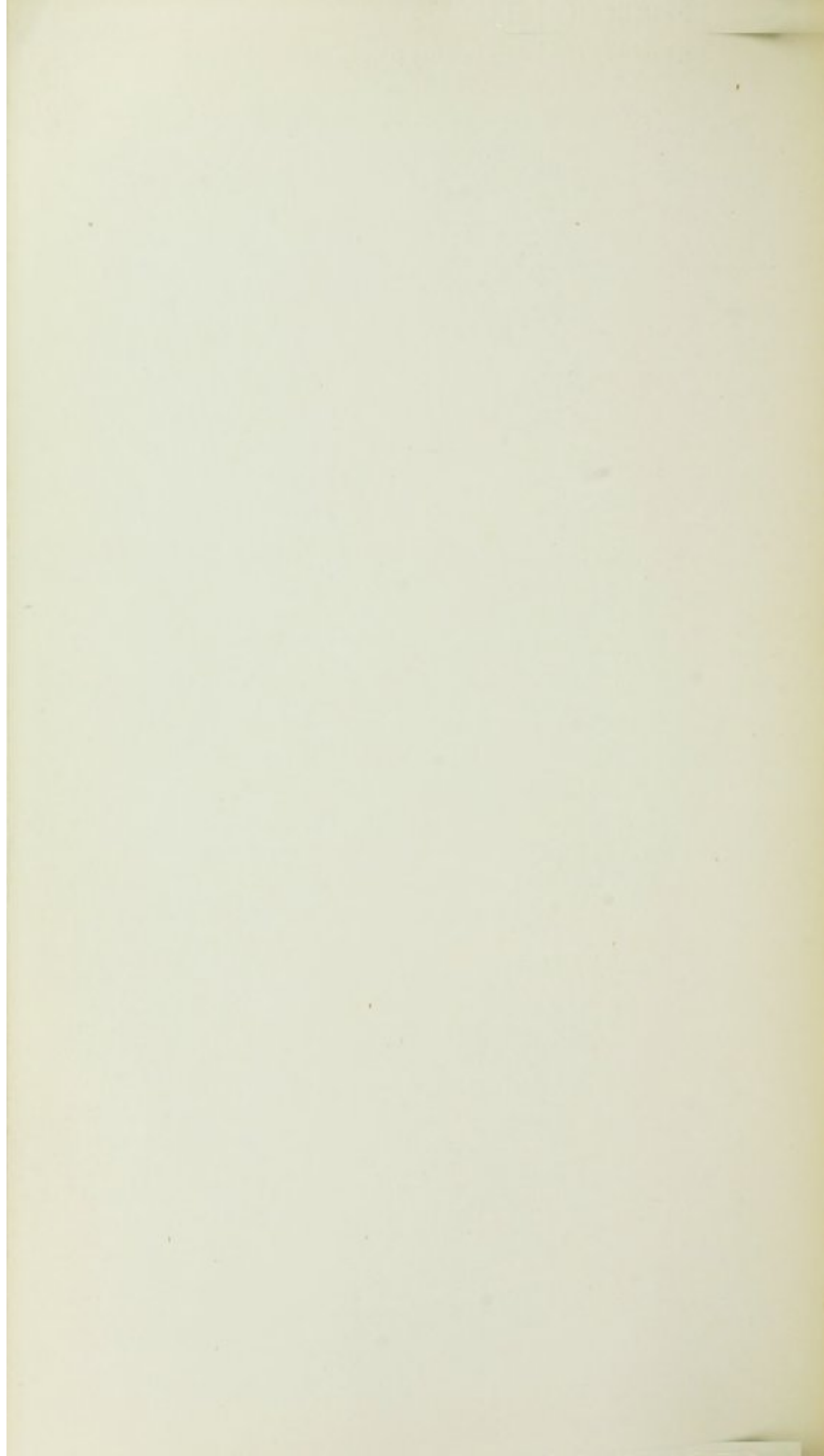
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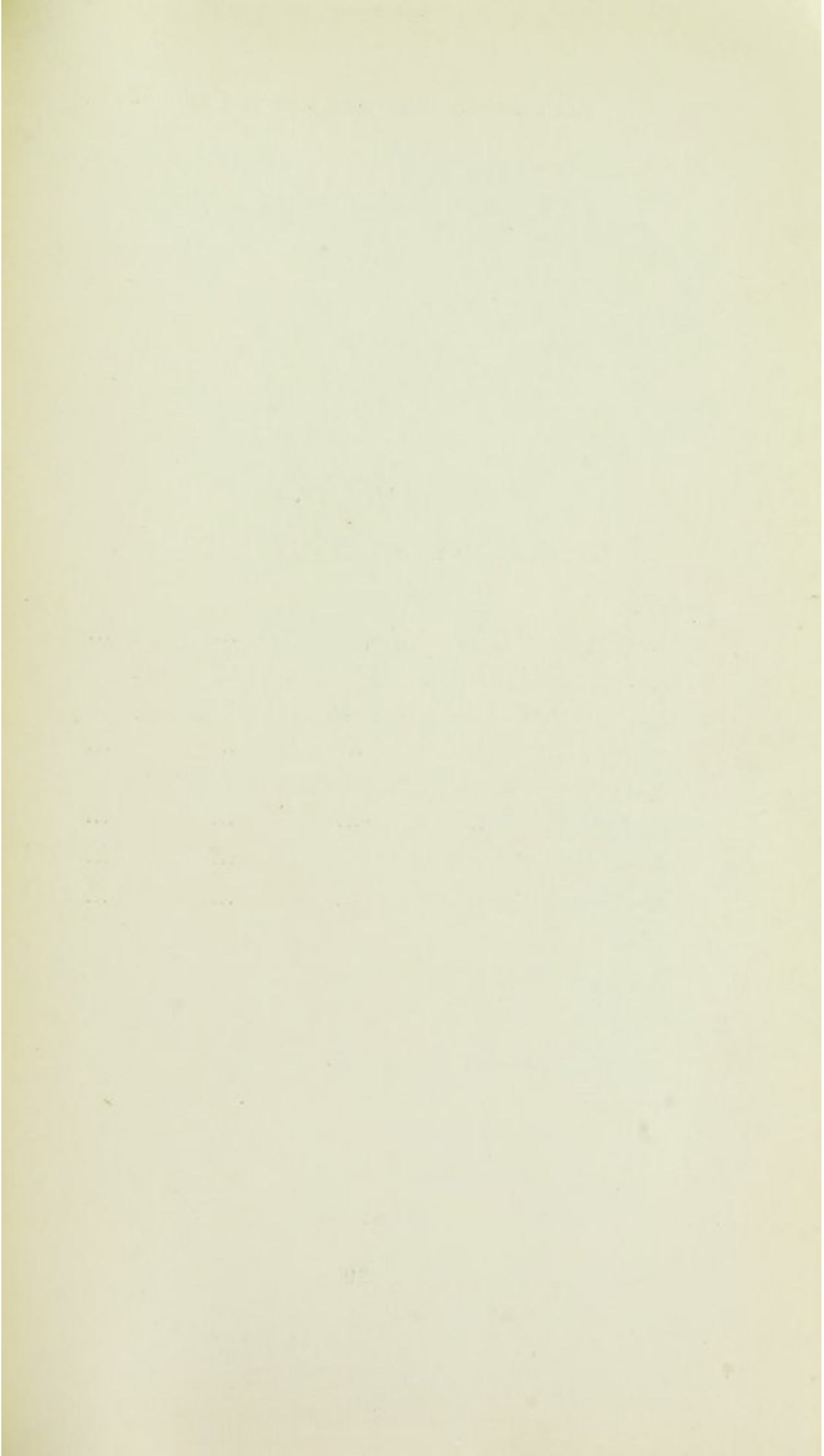


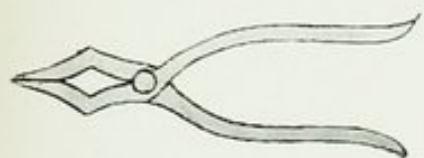
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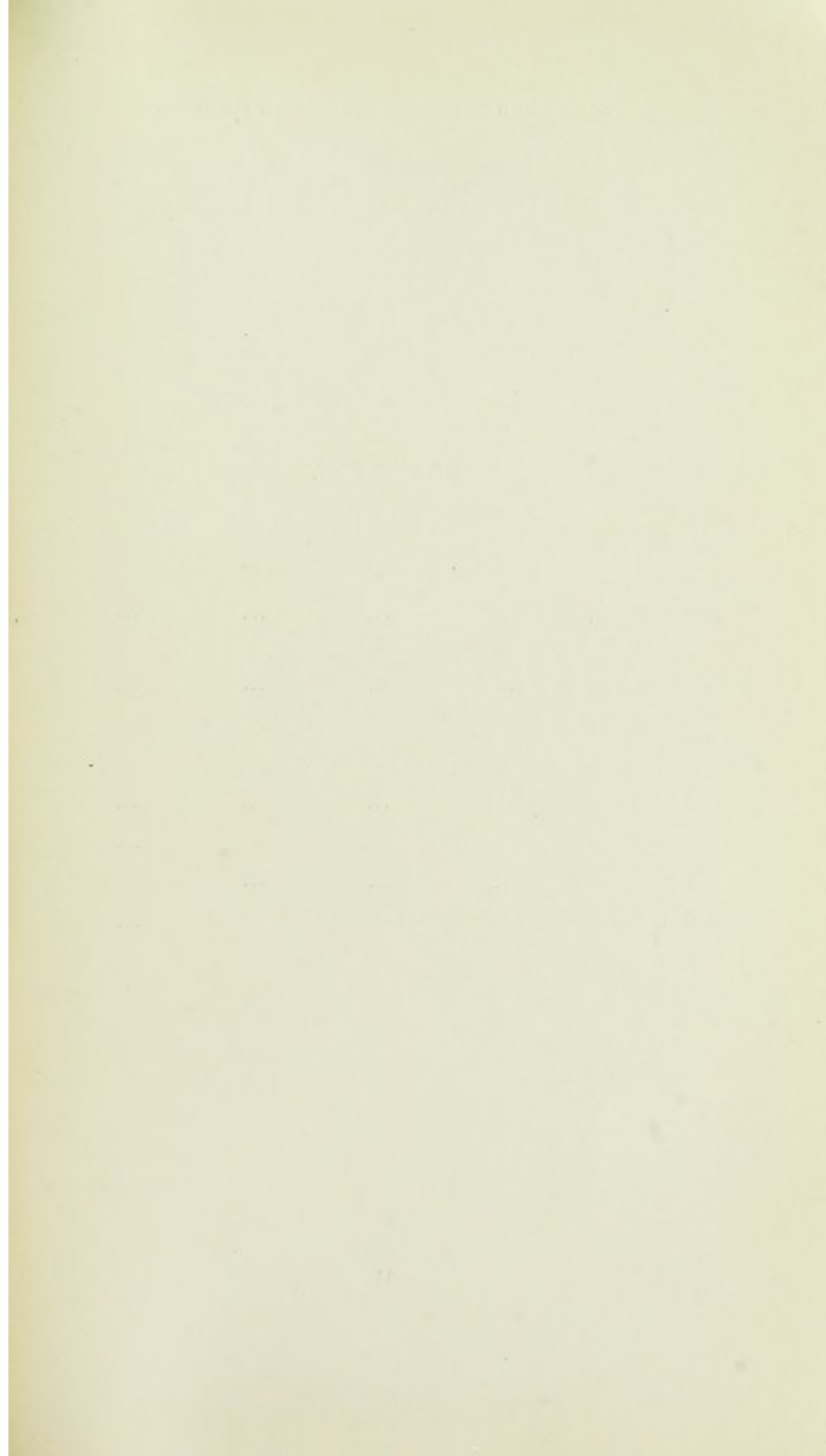


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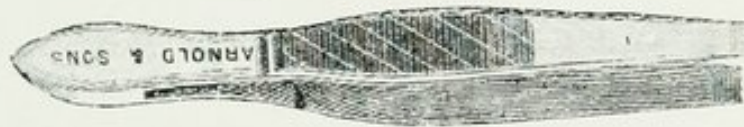
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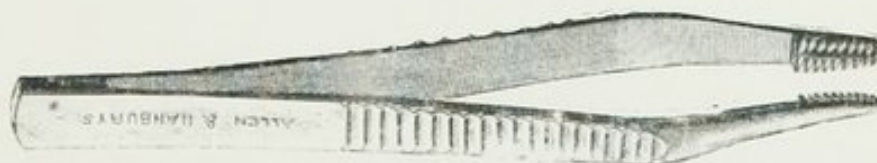
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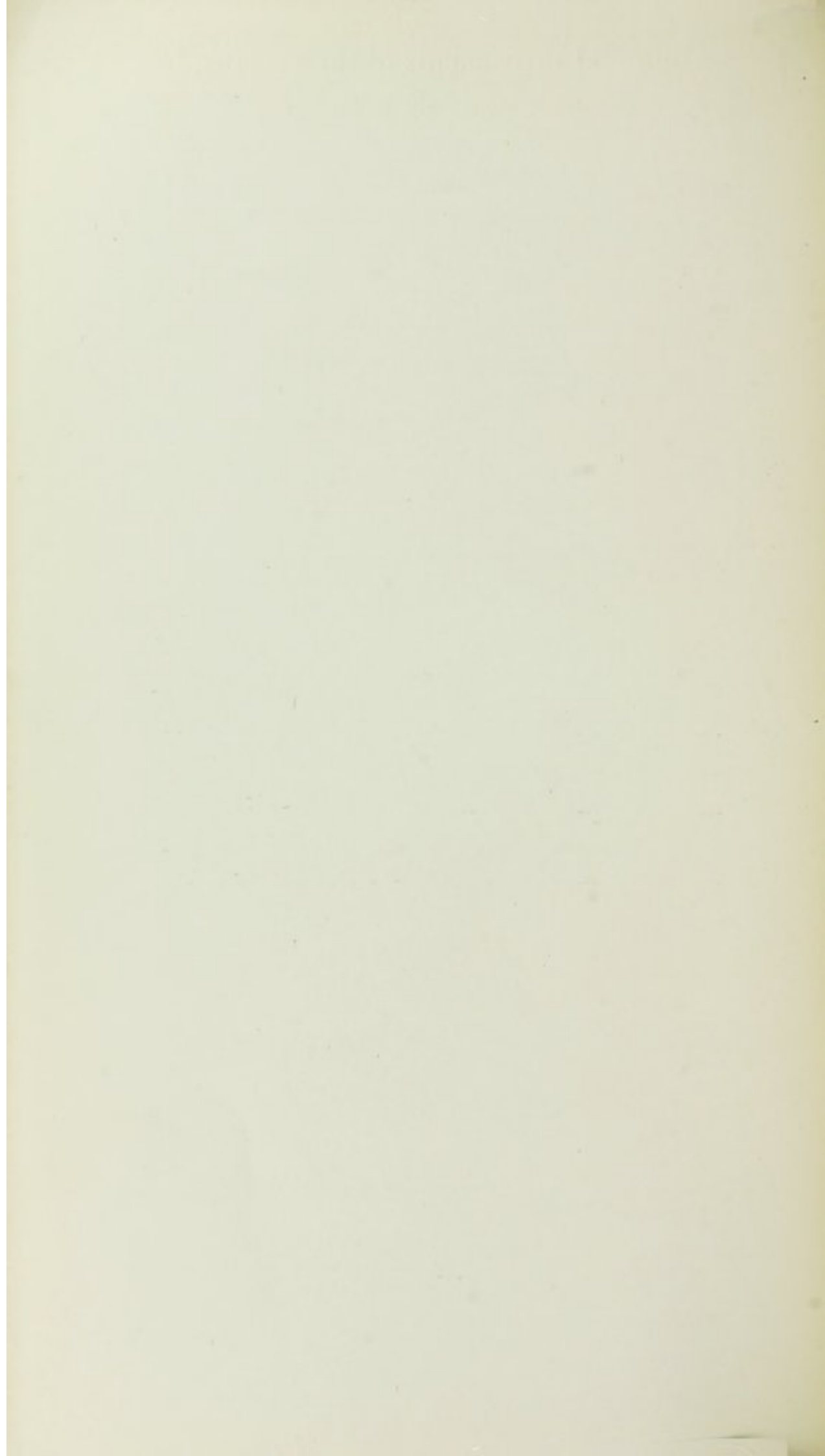
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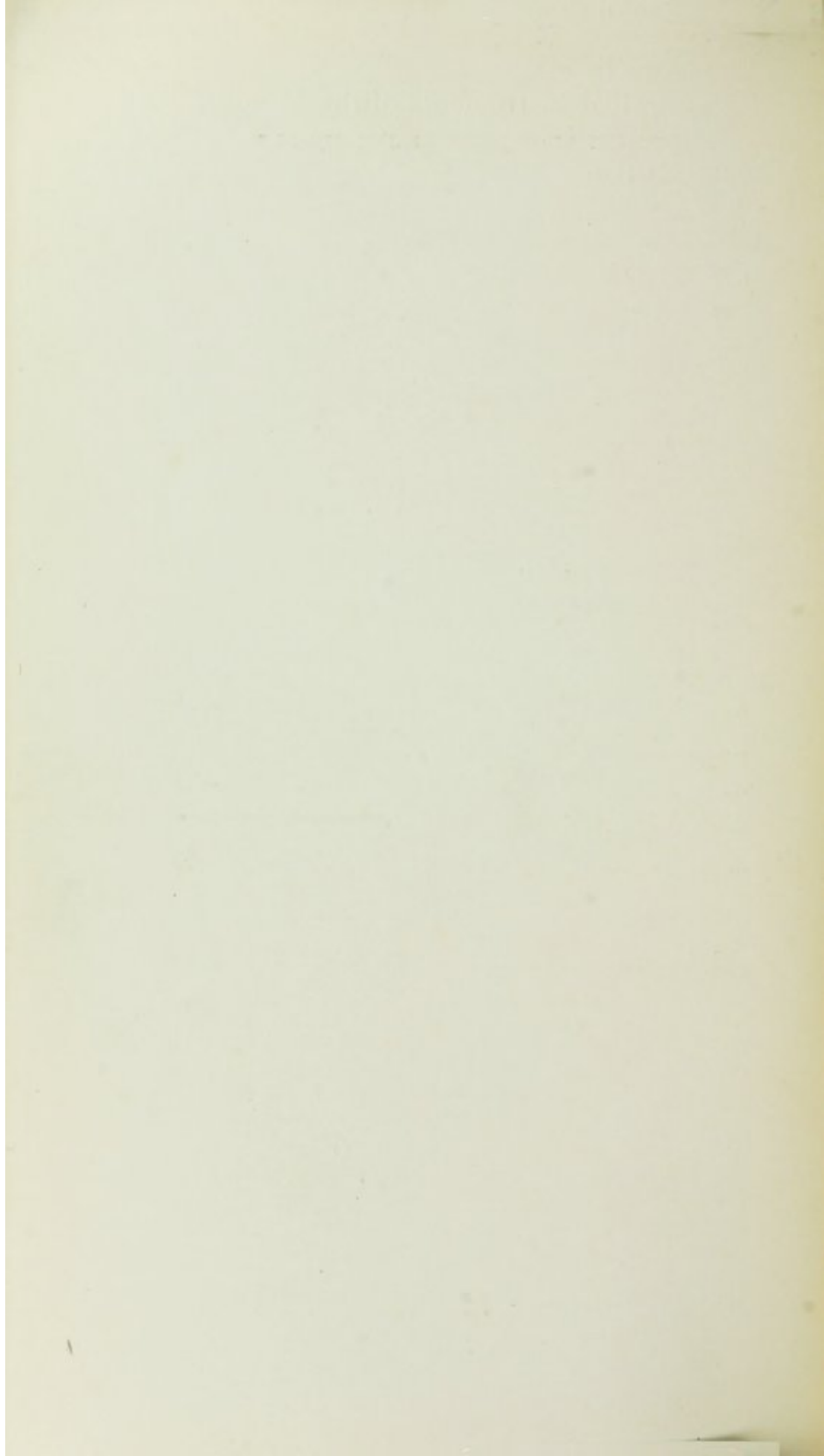
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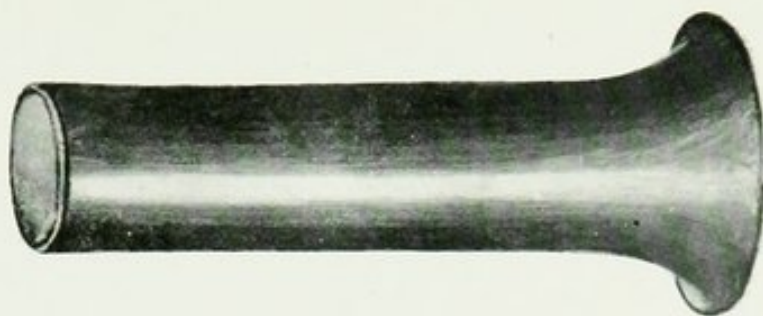
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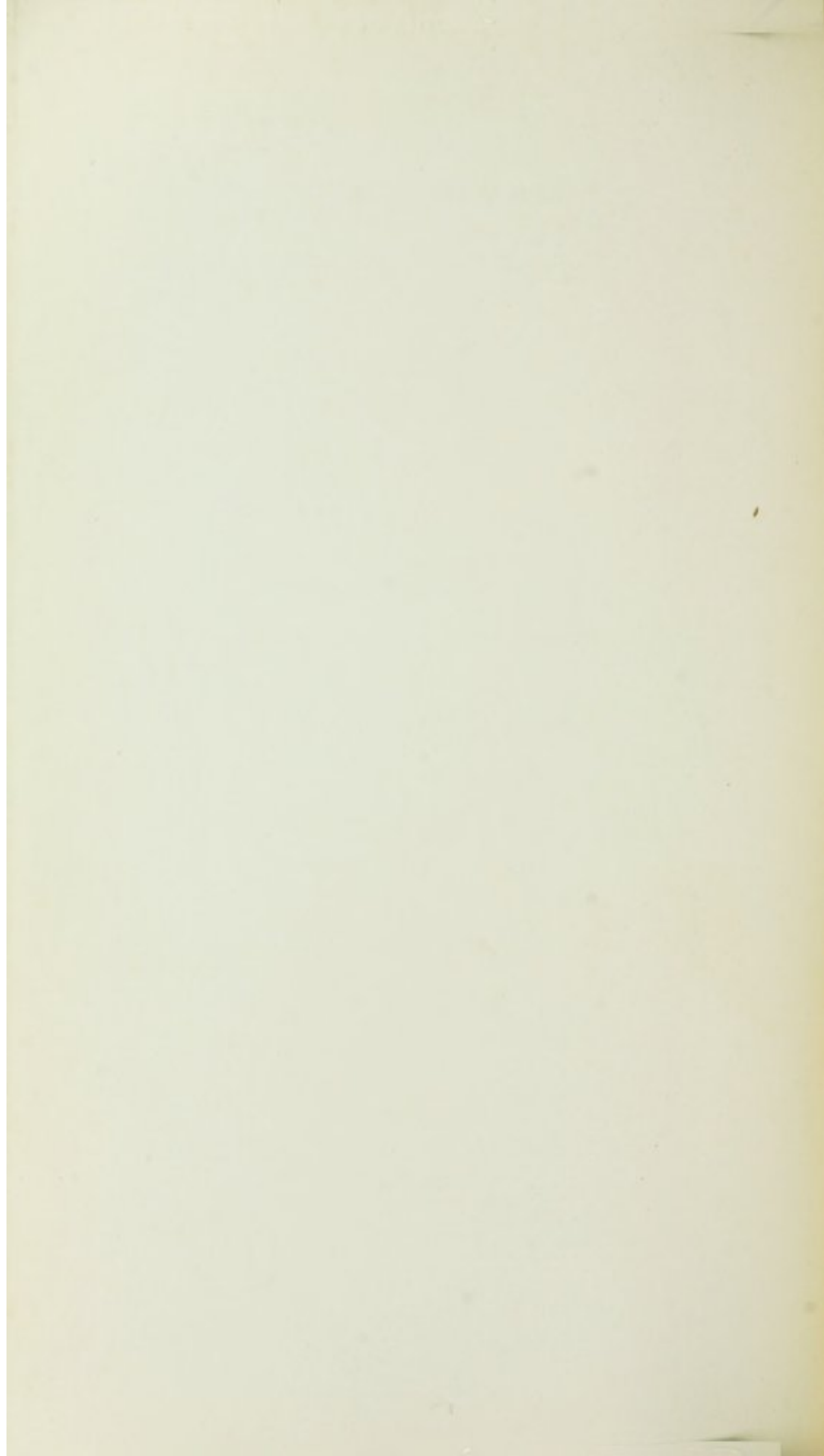




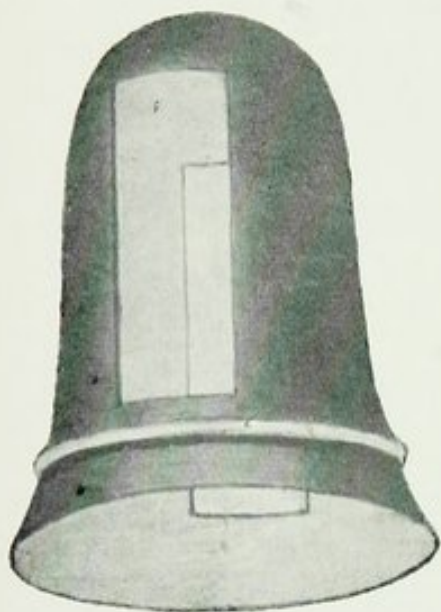
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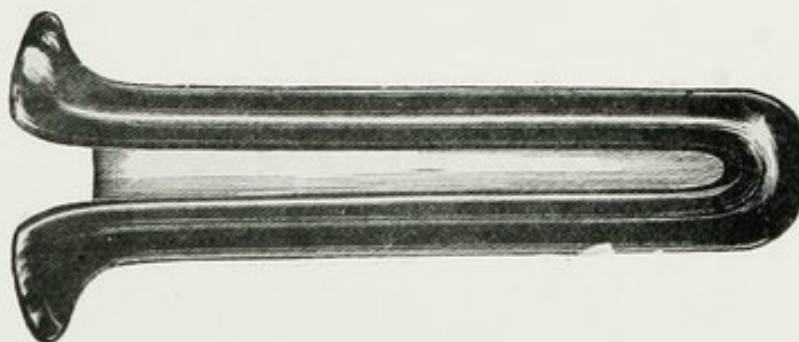
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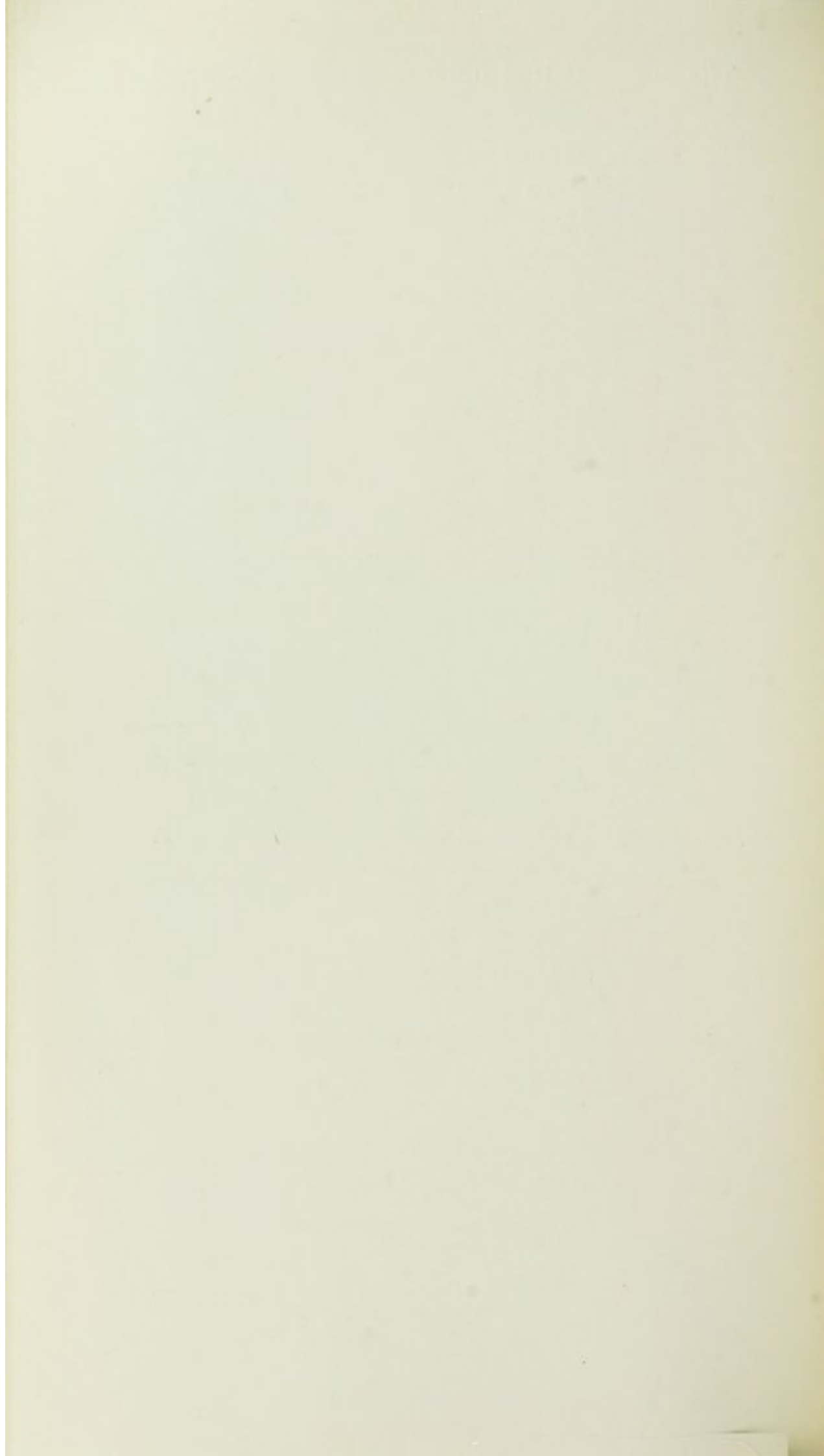
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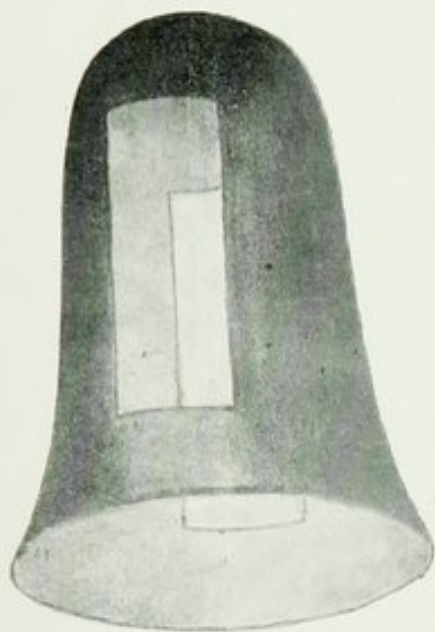
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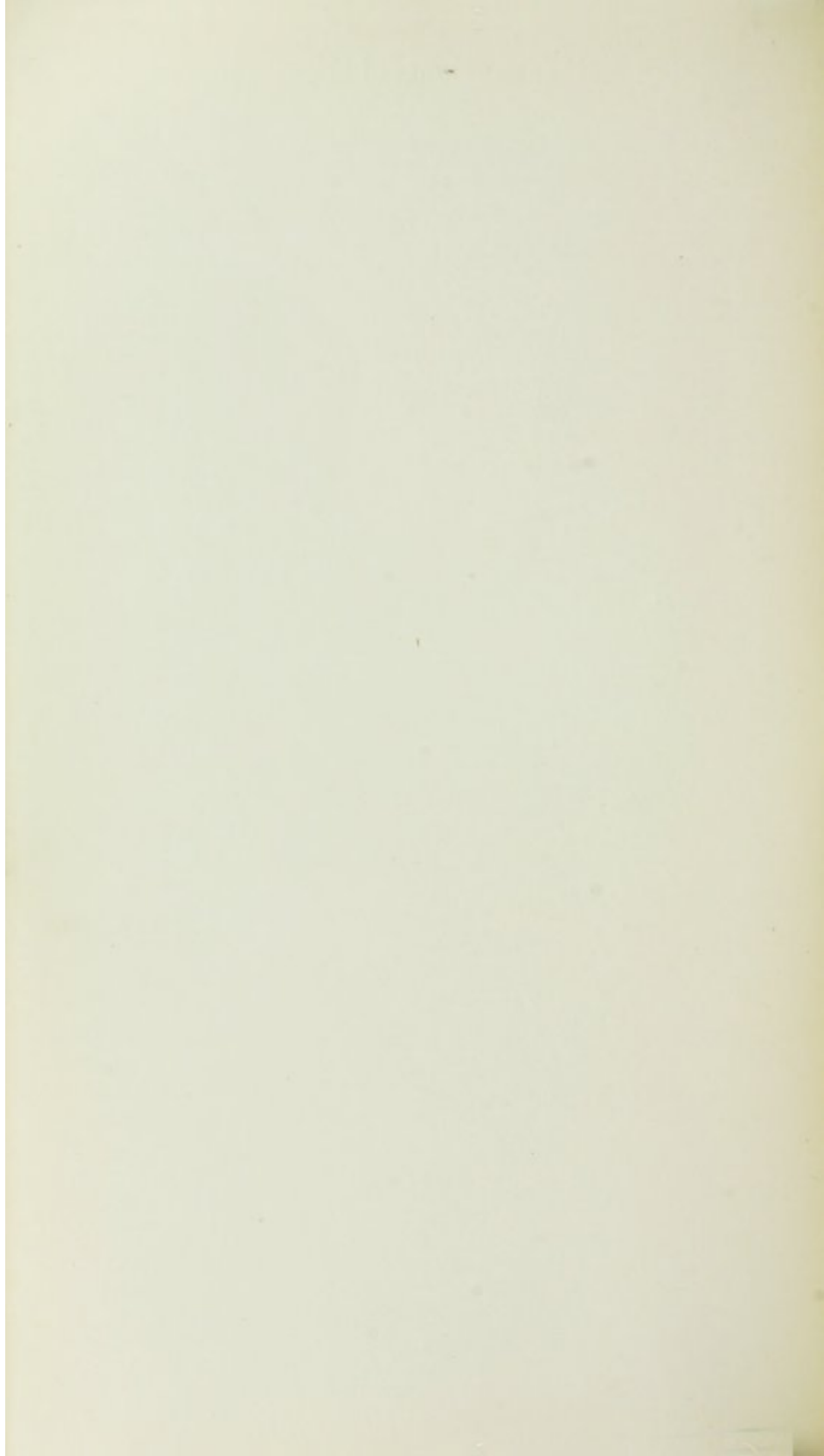
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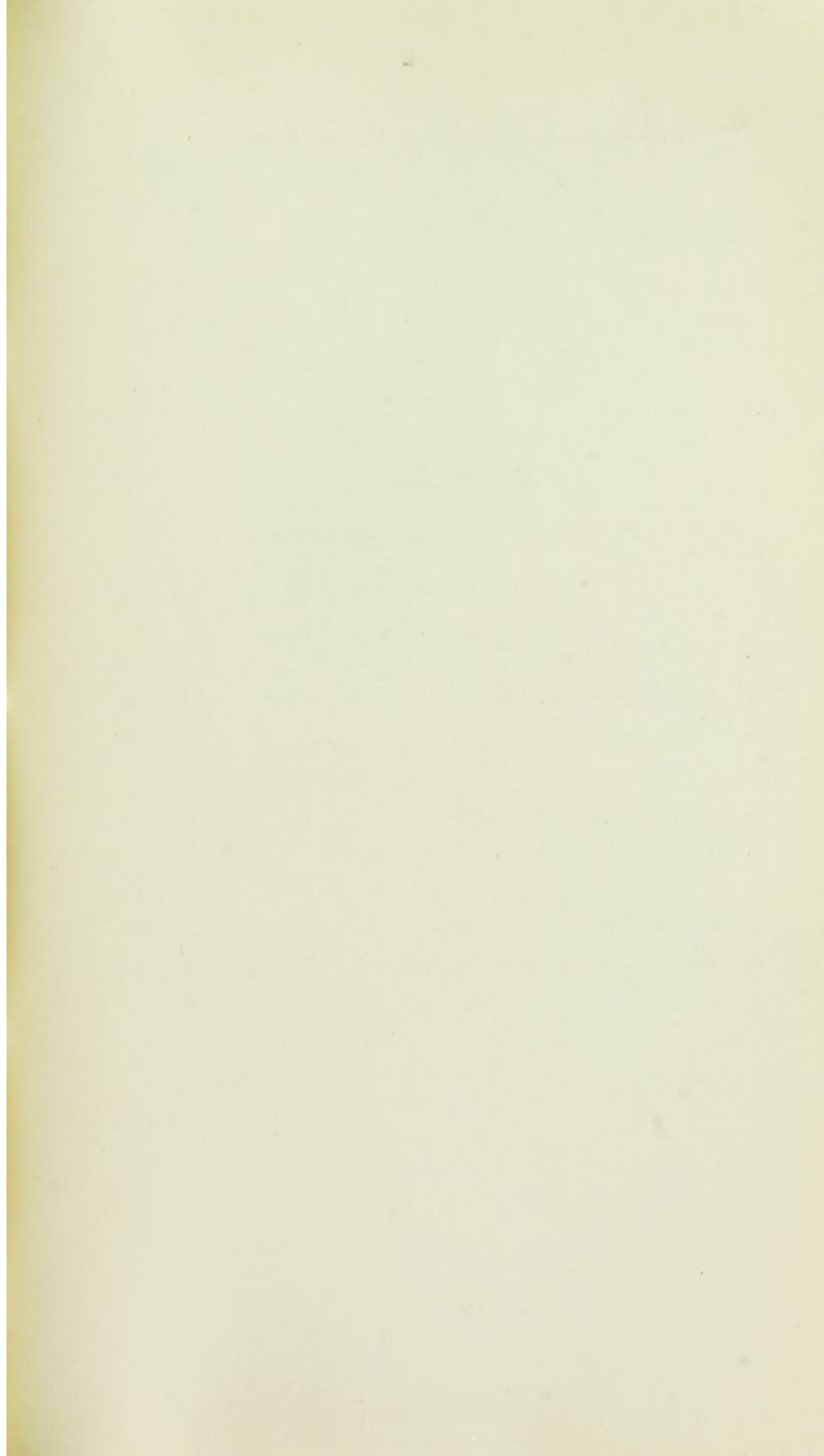


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TUBULAR INSTRUMENTS FOR NOSE.

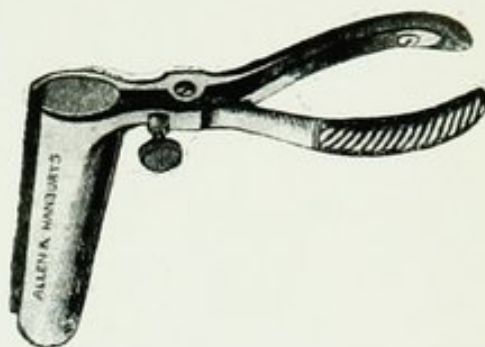
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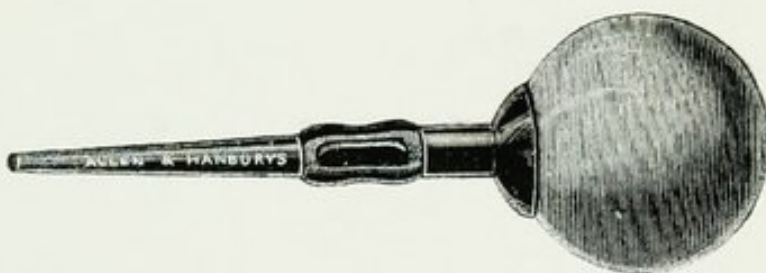
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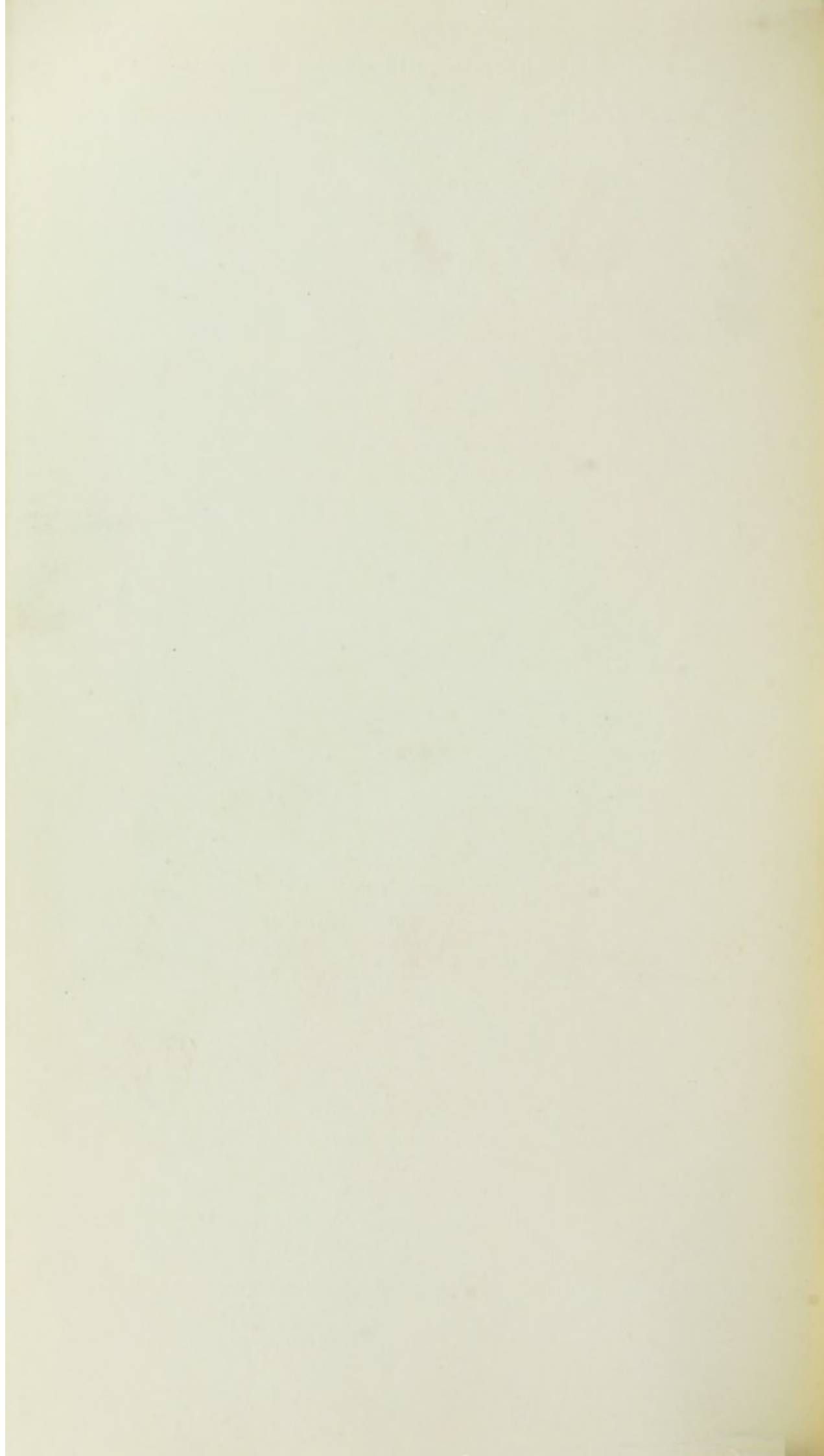
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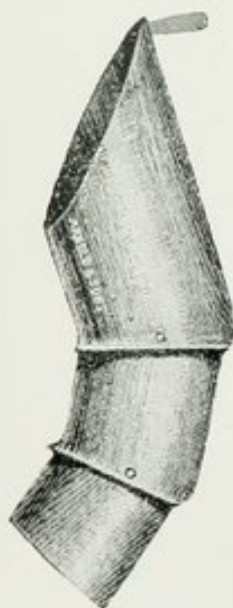
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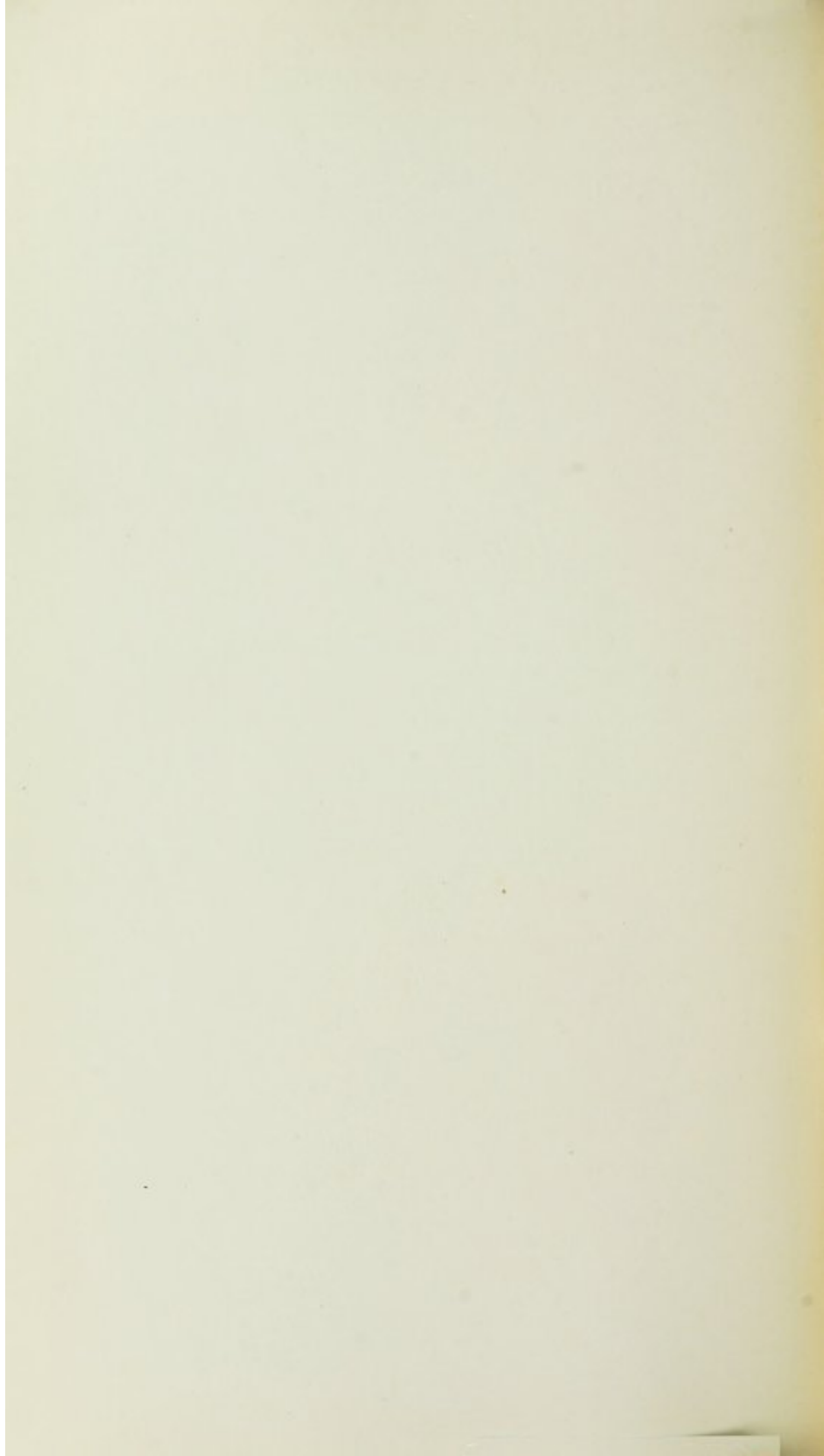
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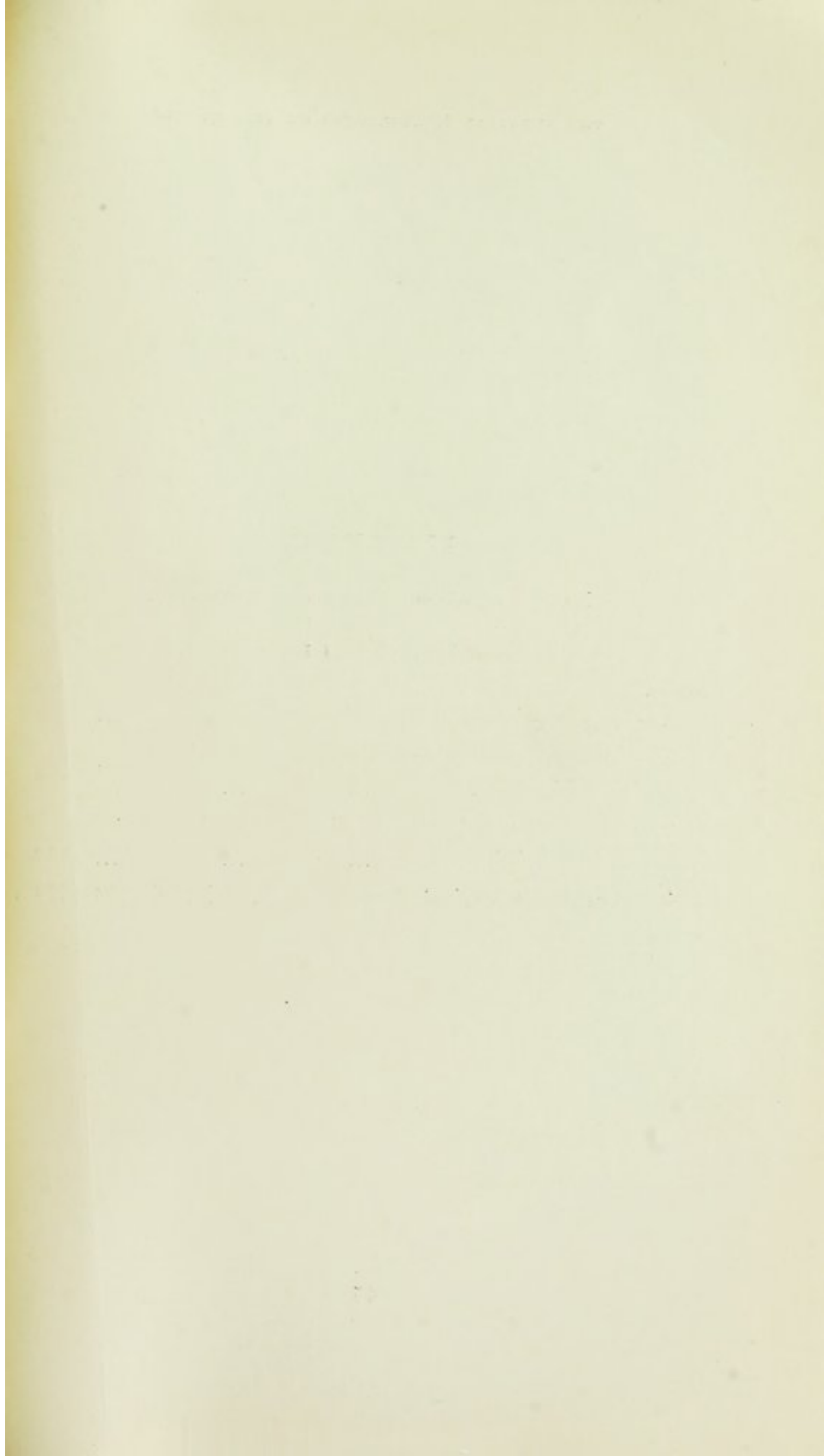


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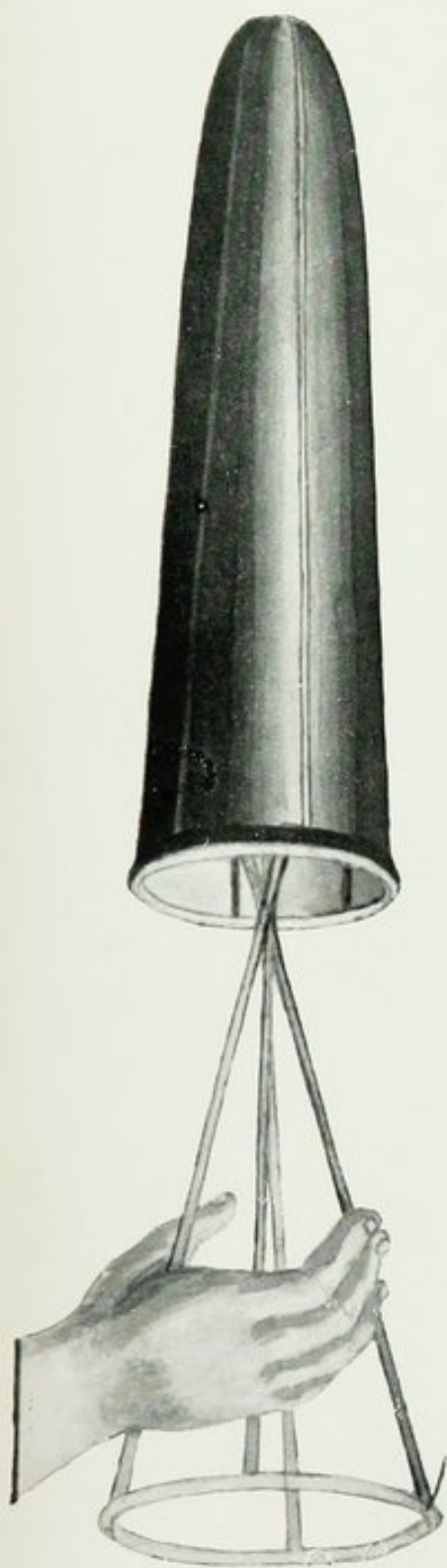
NĀḌĪ YANTRĀ OR TUBULAR INSTRUMENTS.

TUBULAR INSTRUMENTS FOR VAGINA.

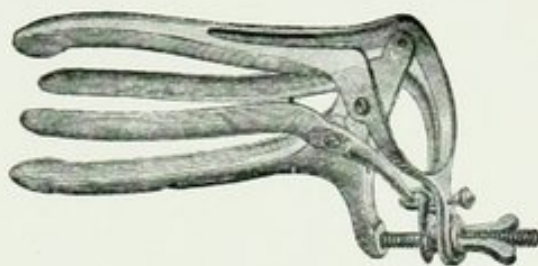
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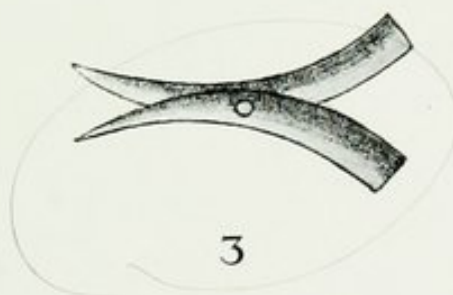
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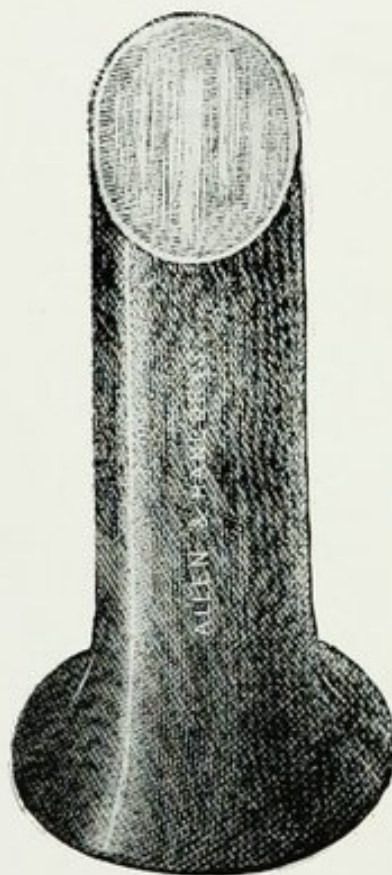
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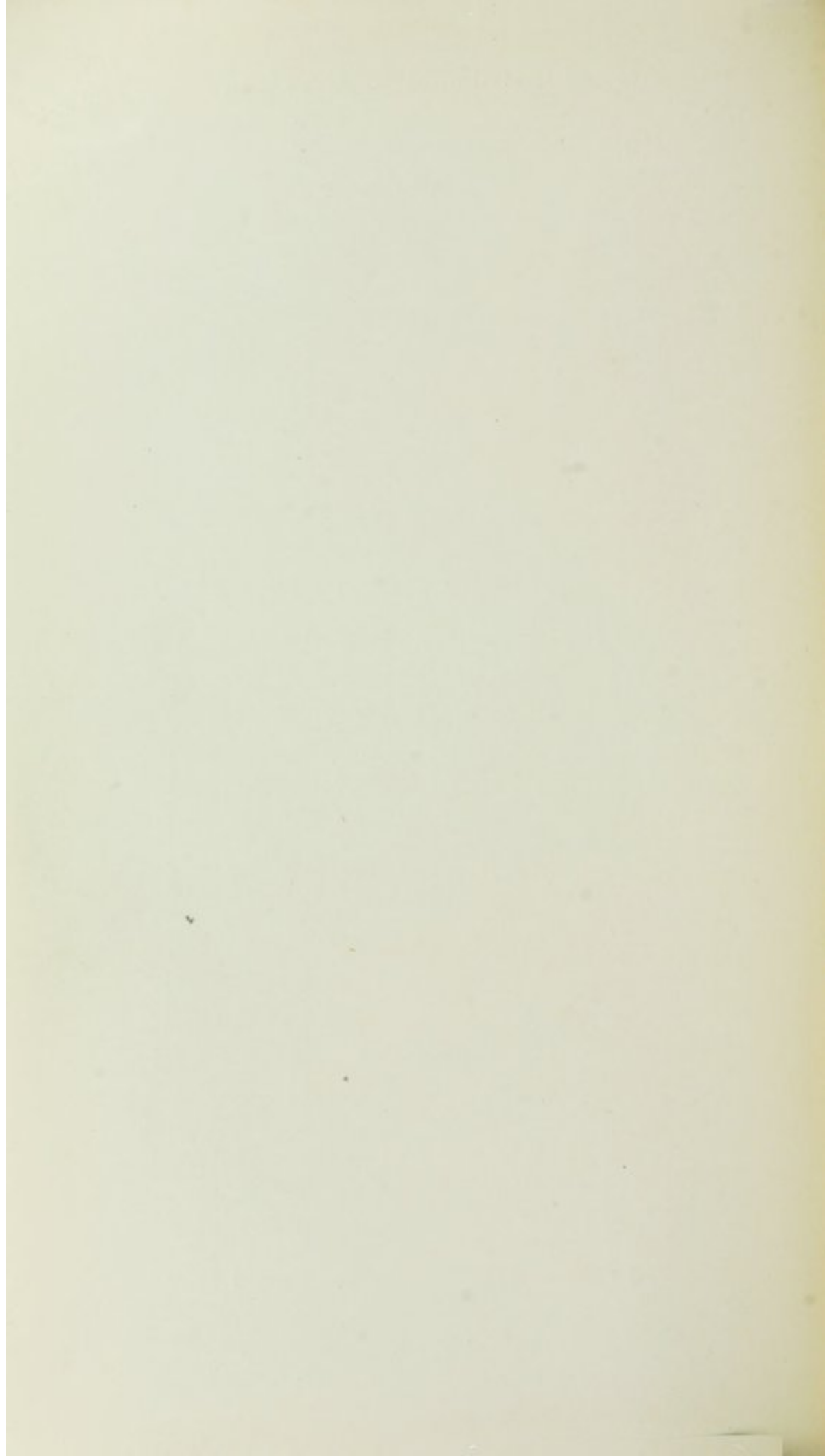
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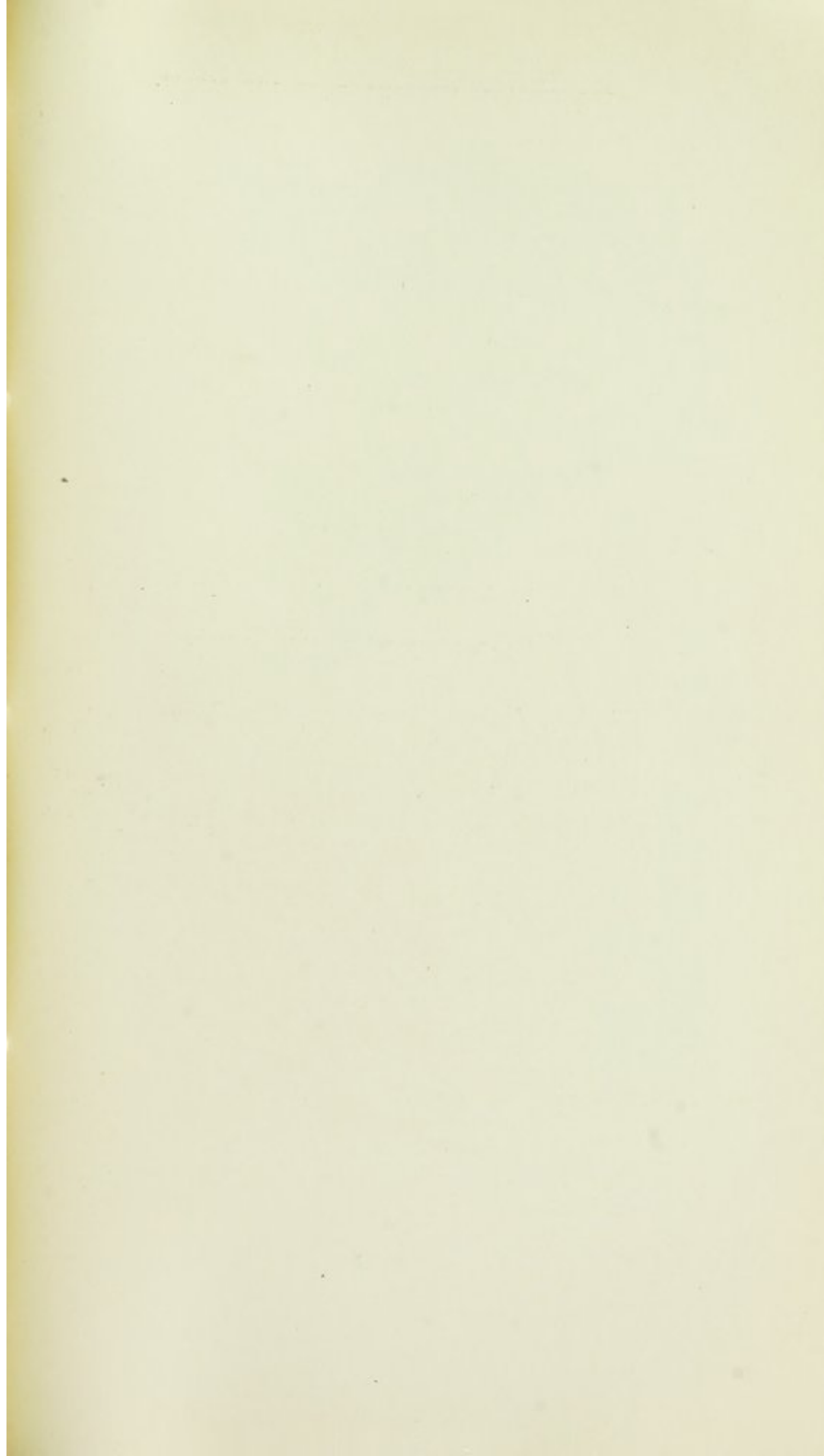


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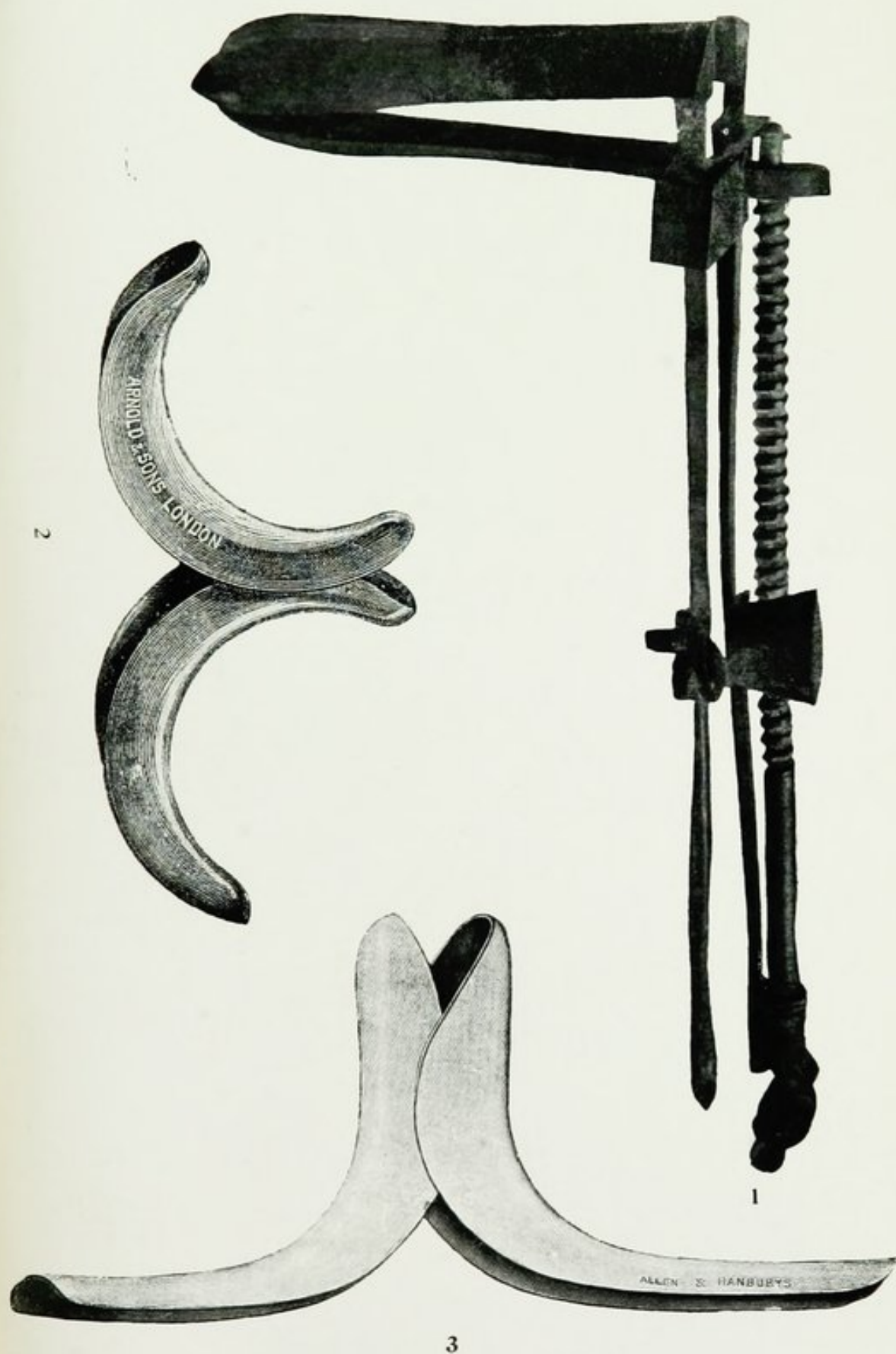
THE NĀḌĪ YANTRA OR TUBULAR INSTRUMENTS.

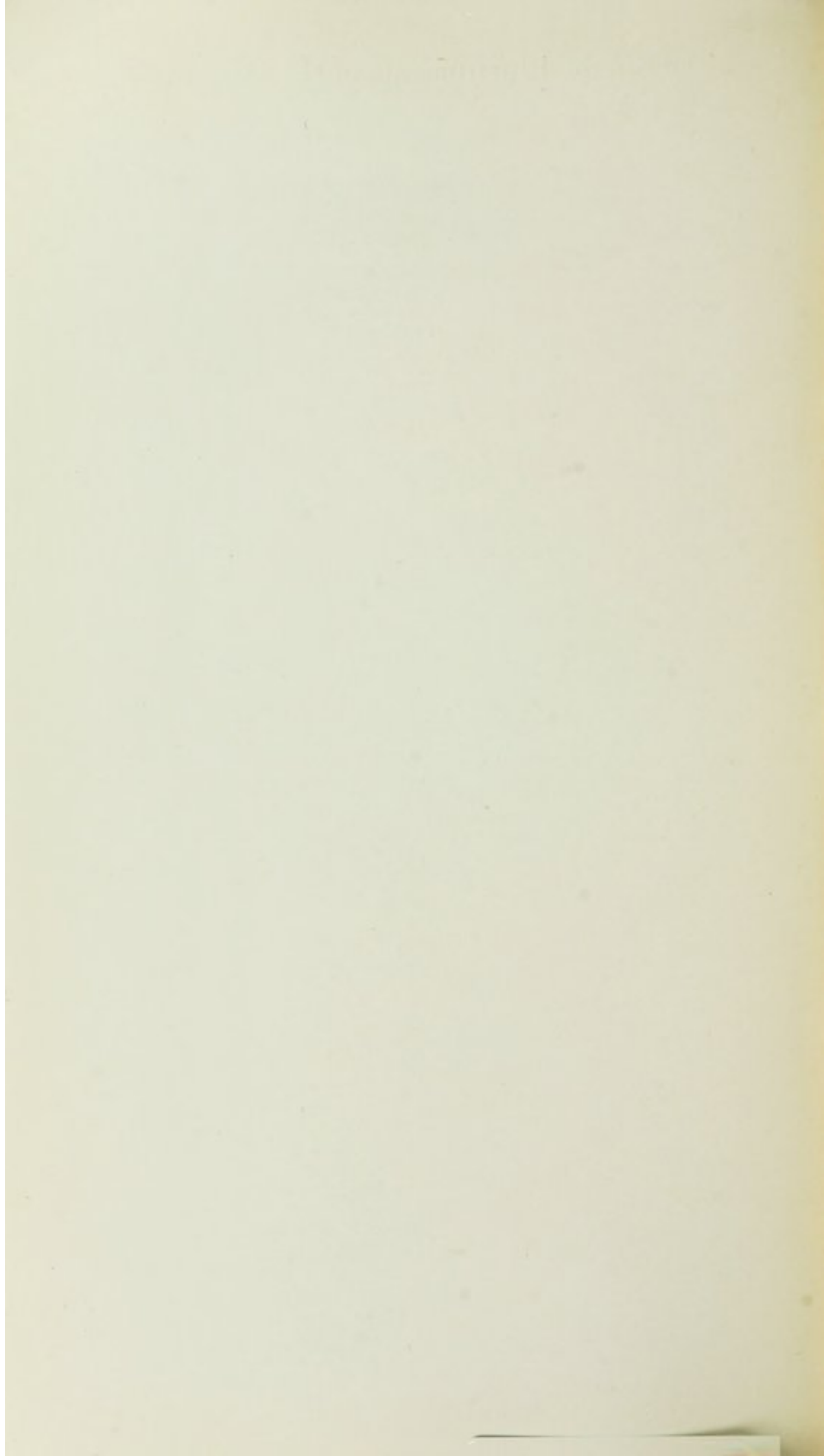
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THE SURGICAL INSTRUMENTS OF THE HINDUS.

PLATE XXV.

NĀḌĪ YANTRA OR TUBULAR INSTRUMENTS.

TUBULAR INSTRUMENTS FOR WOUND.

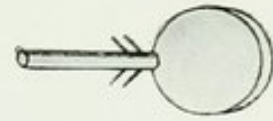
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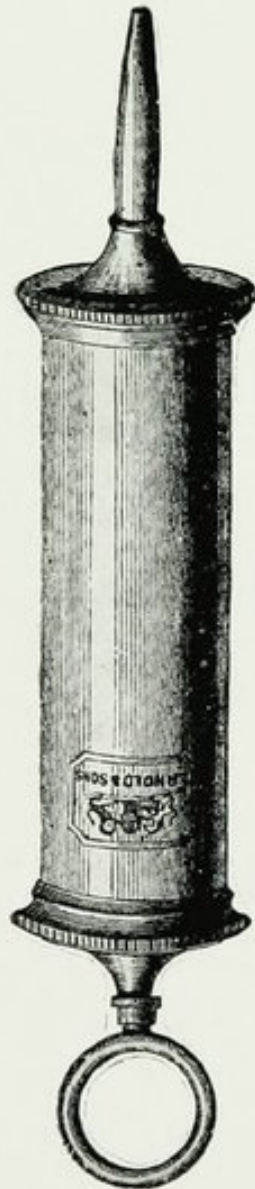
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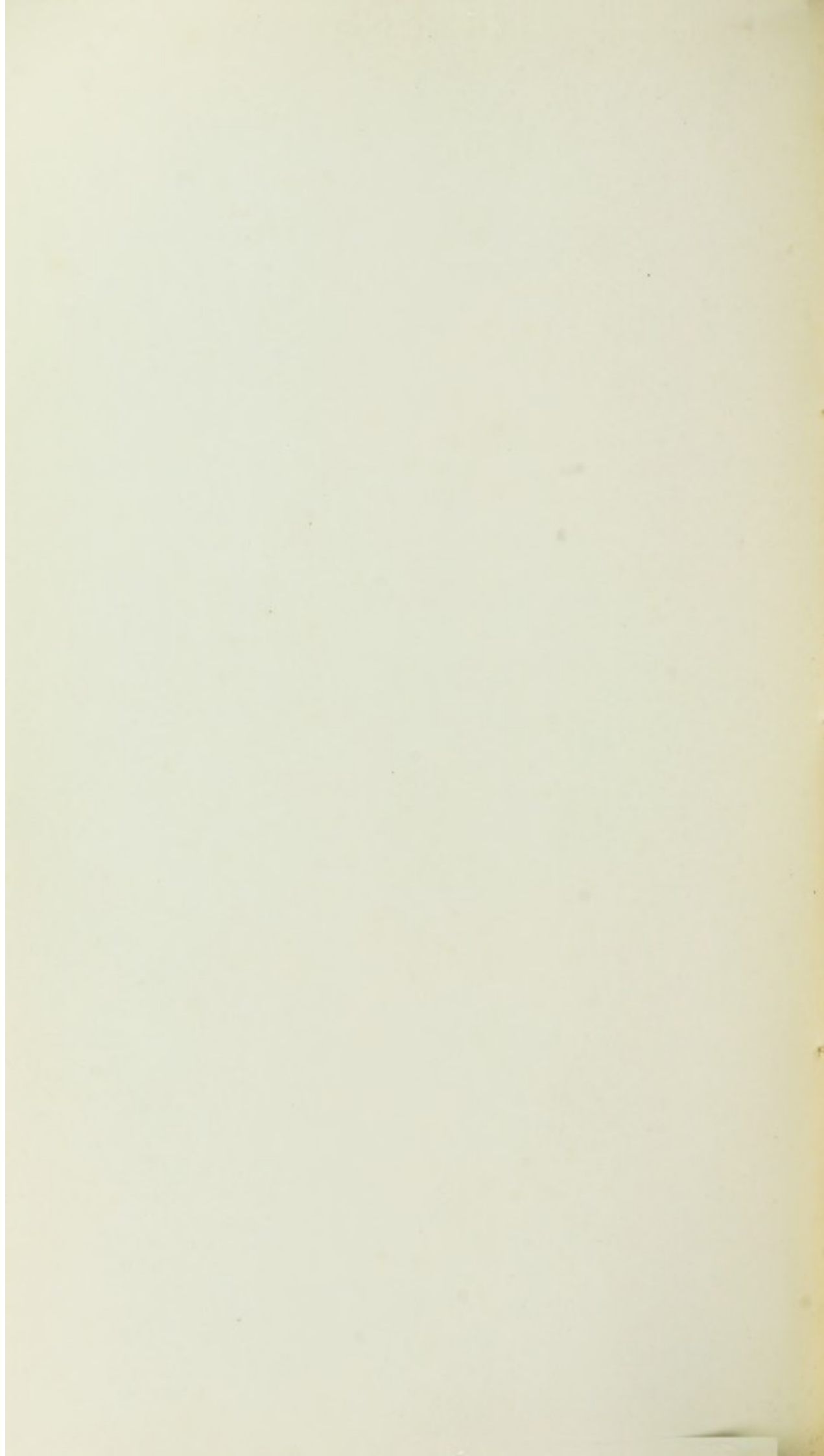


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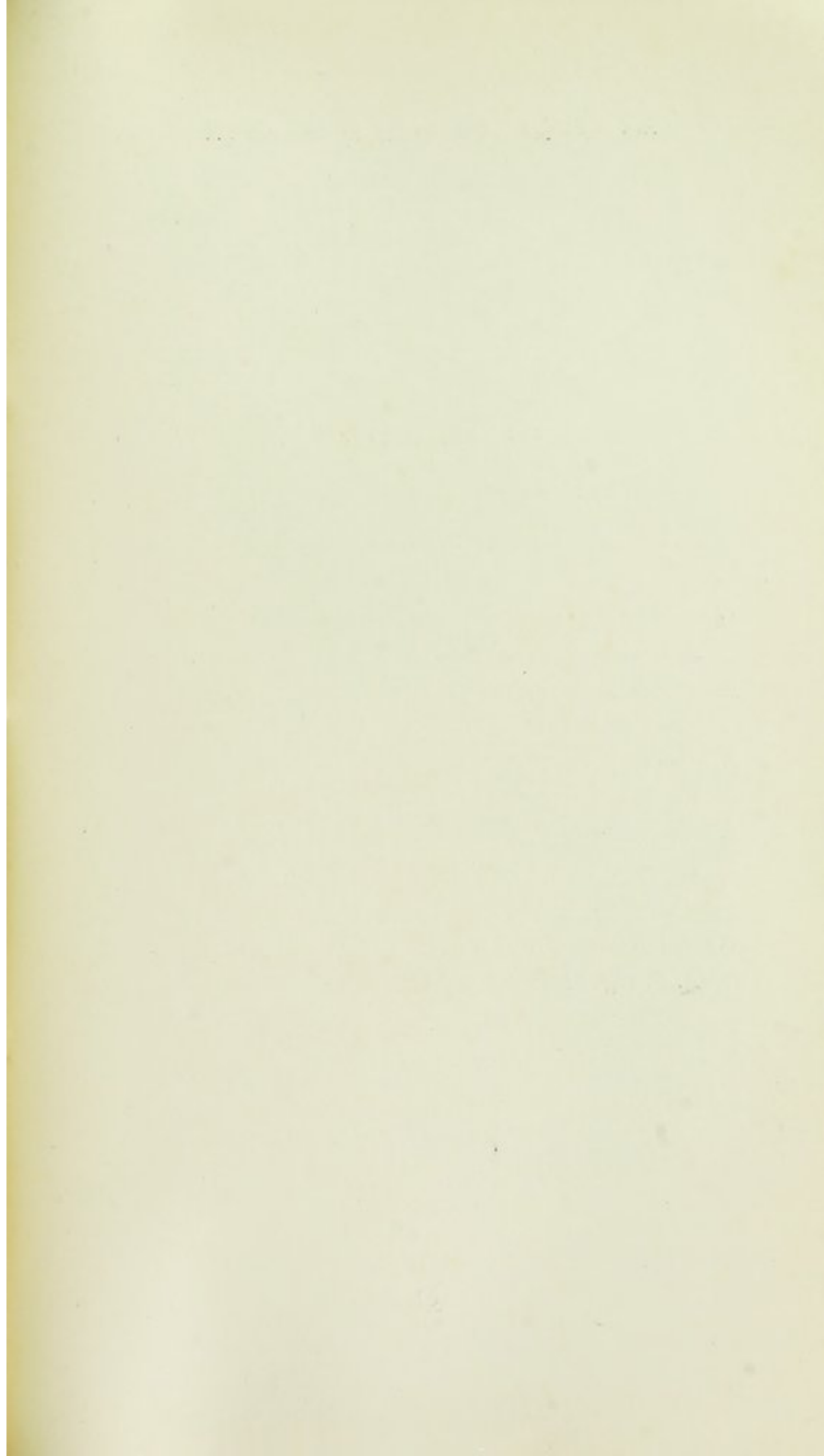


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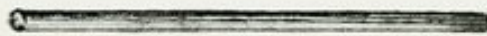
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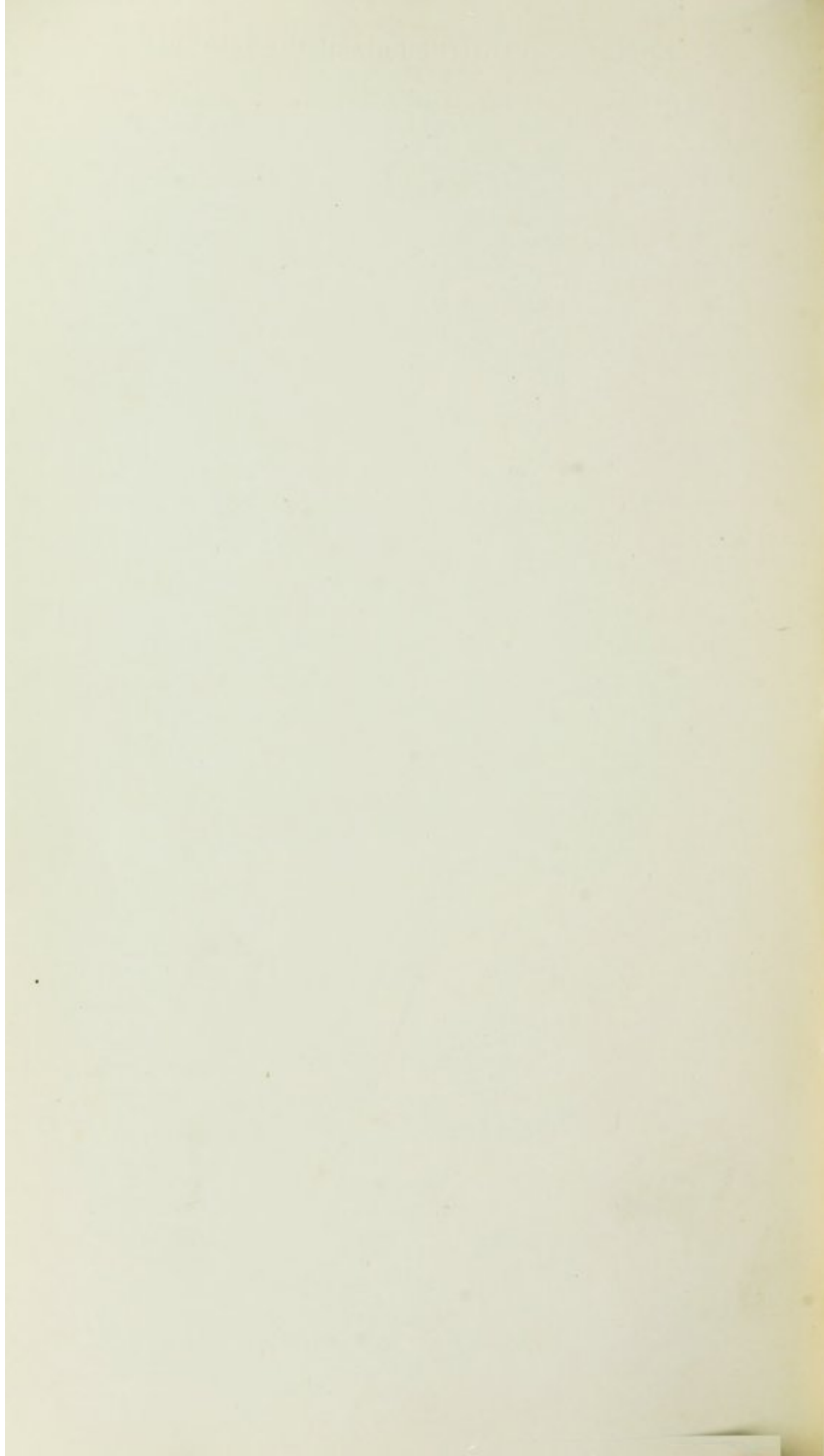


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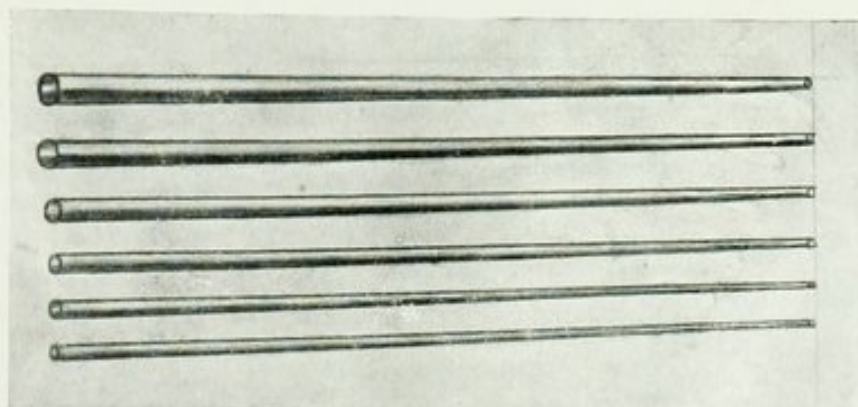
THE NĀḌĪ YANTRA OF TUBULAR INSTRUMENTS.

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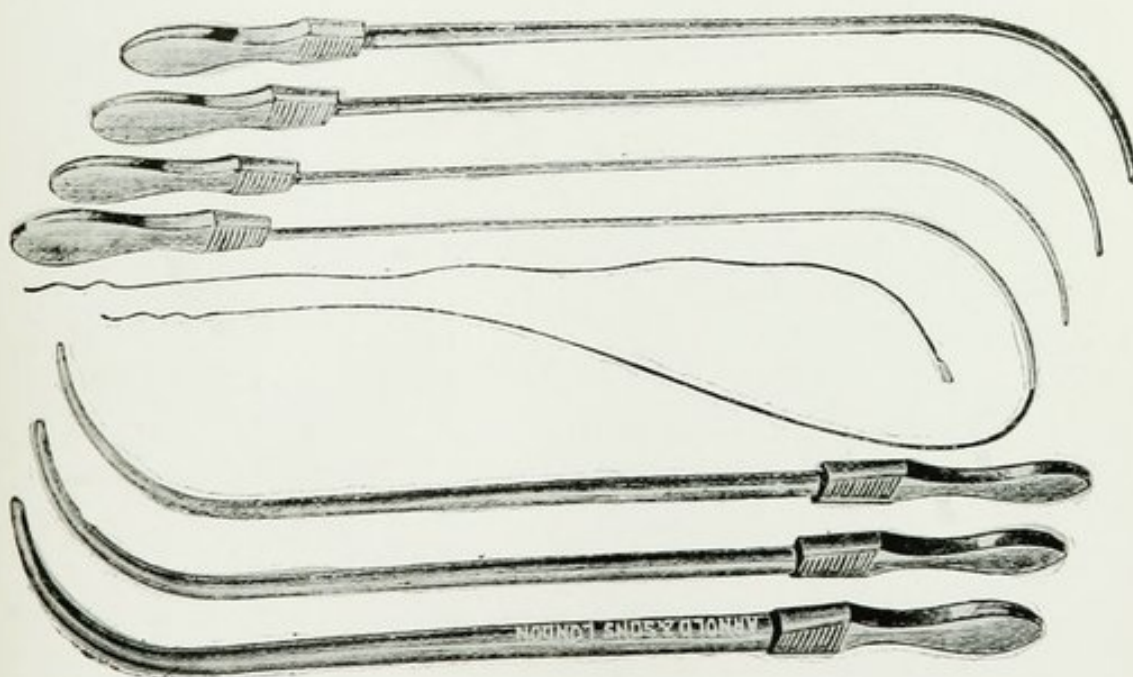
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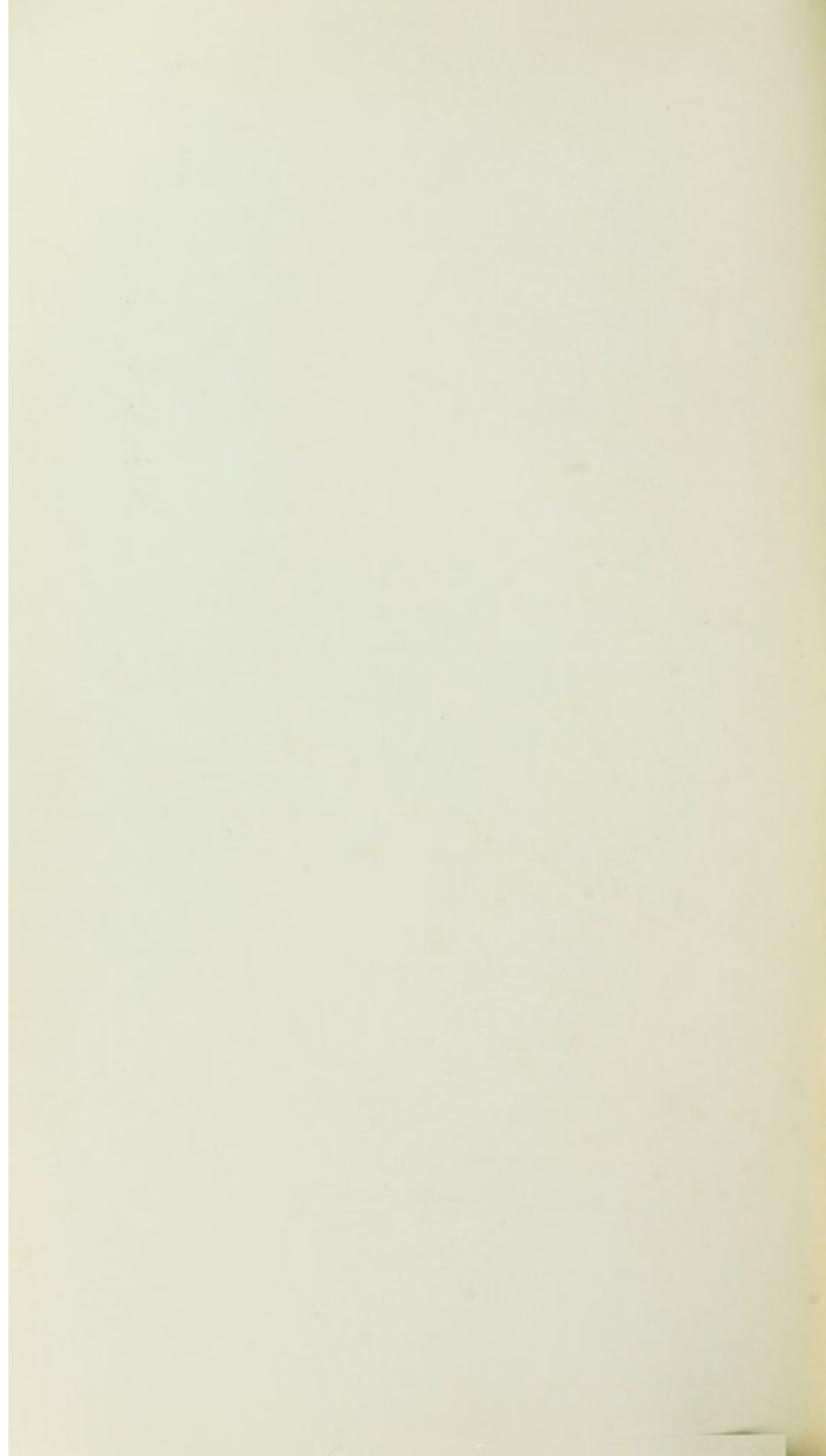
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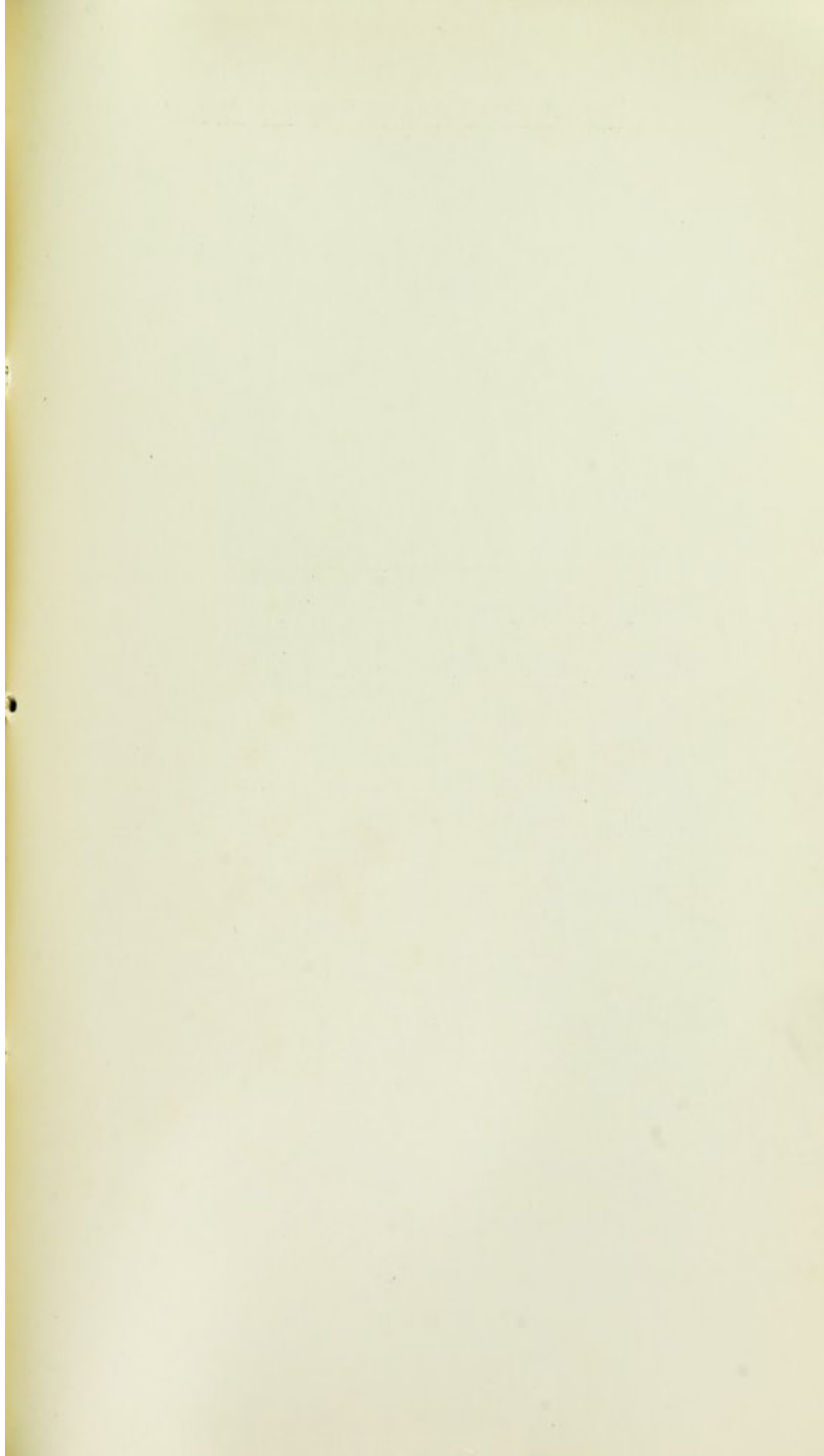


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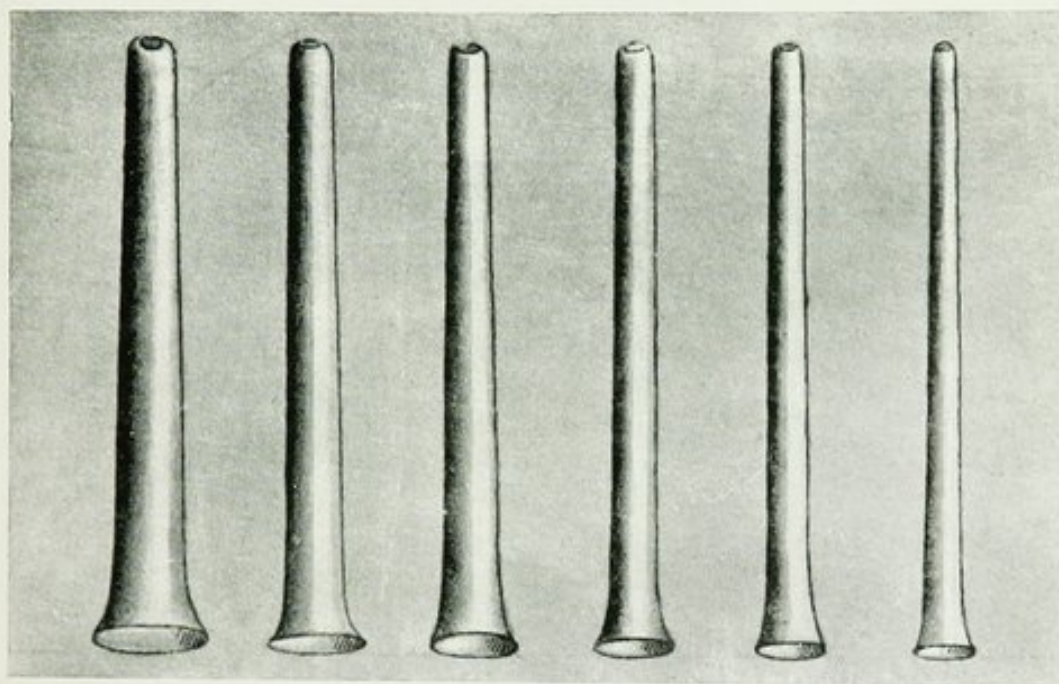
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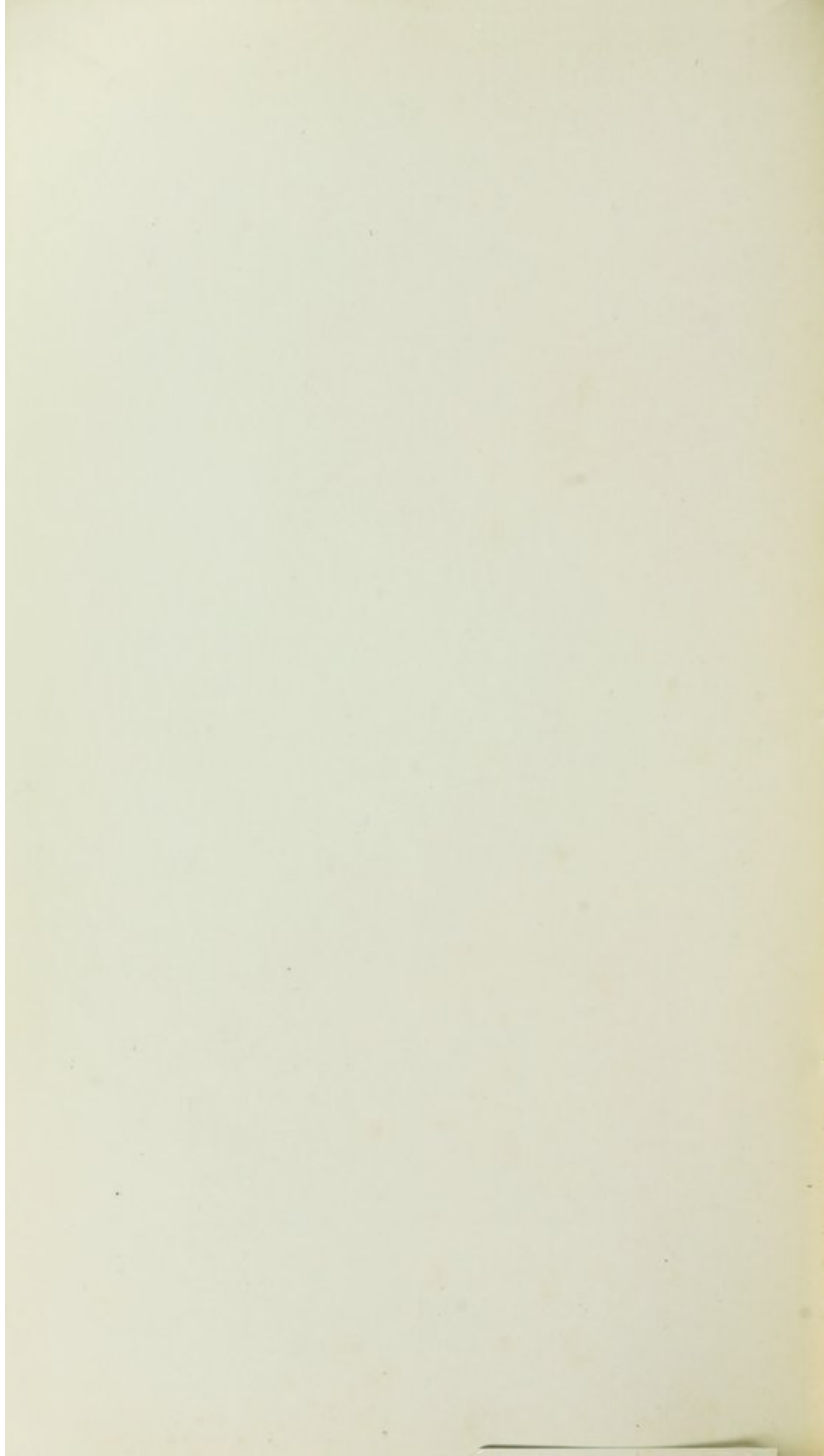
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CHICAGO, ILL., U.S.A.
1914

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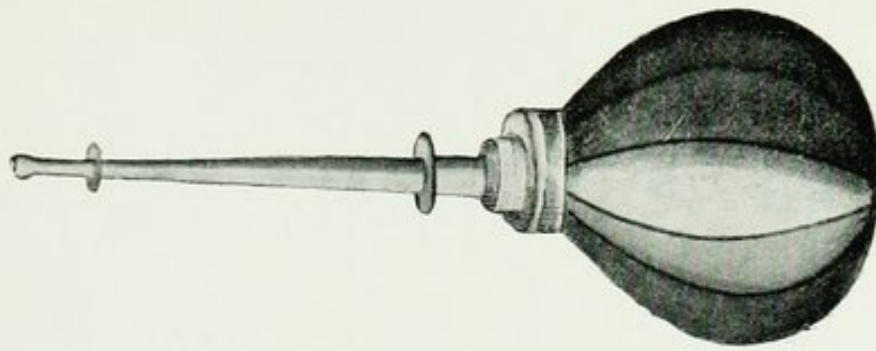
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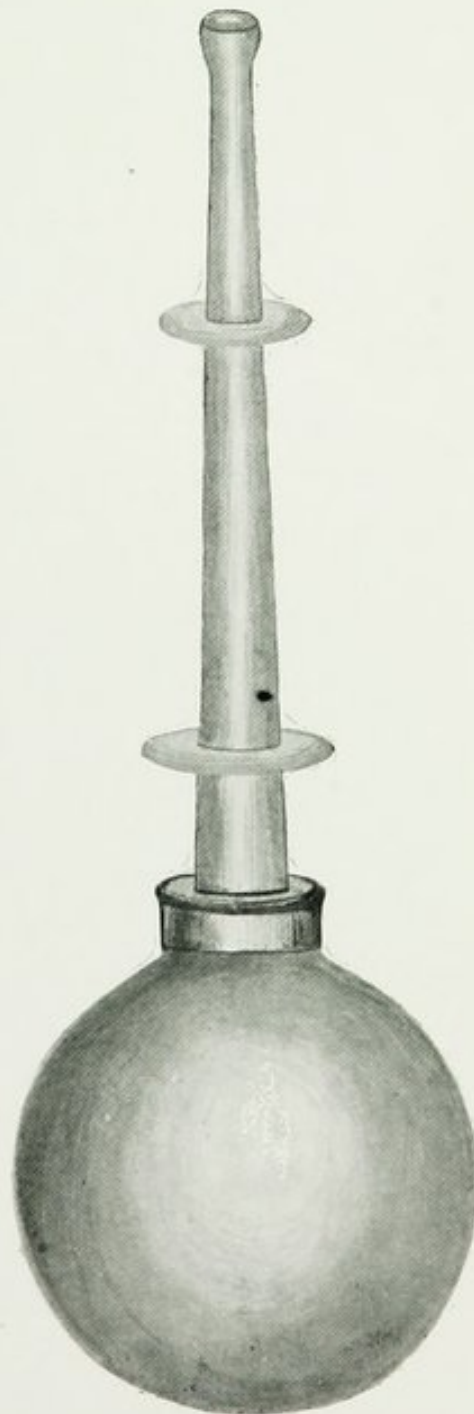
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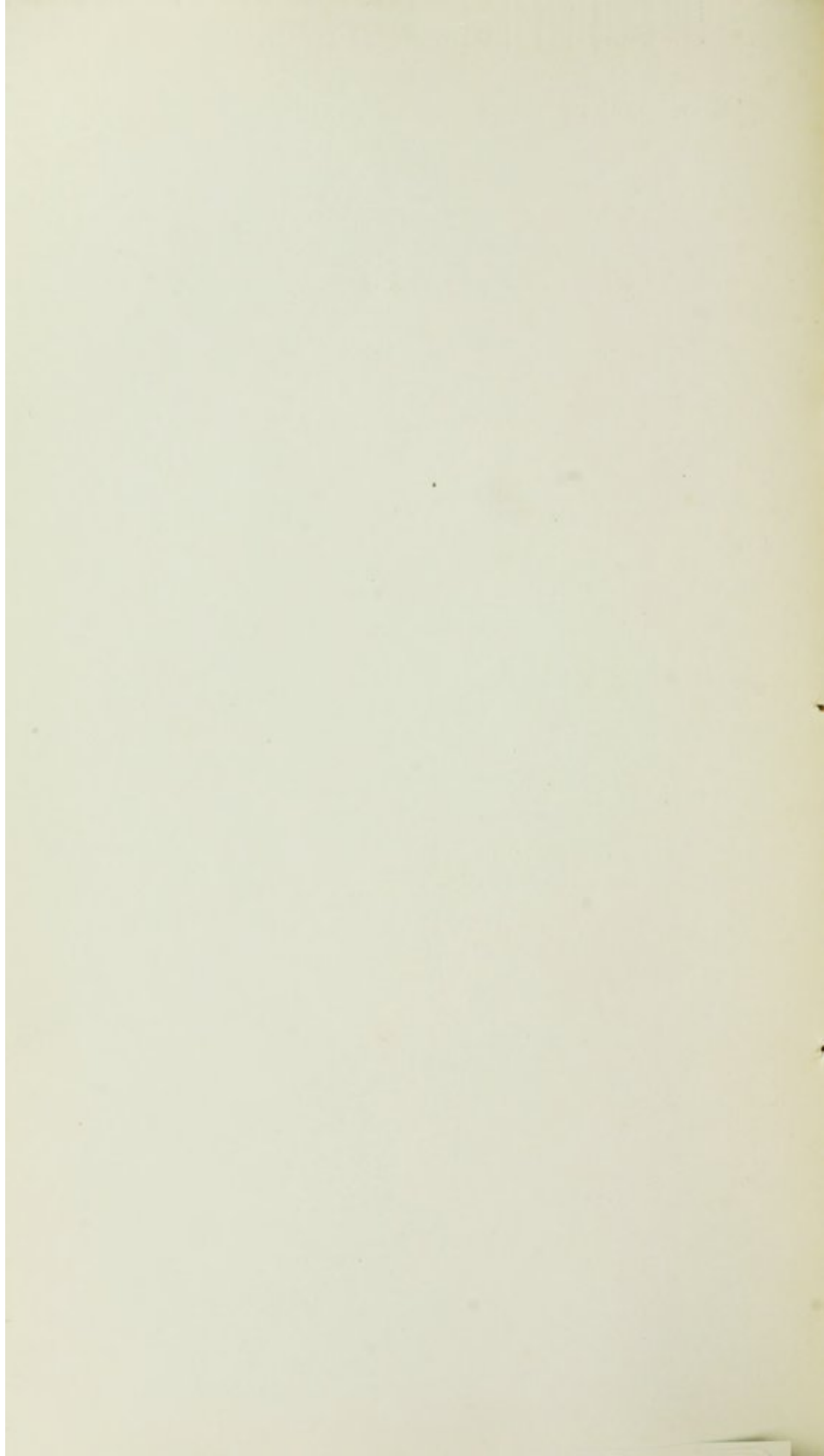
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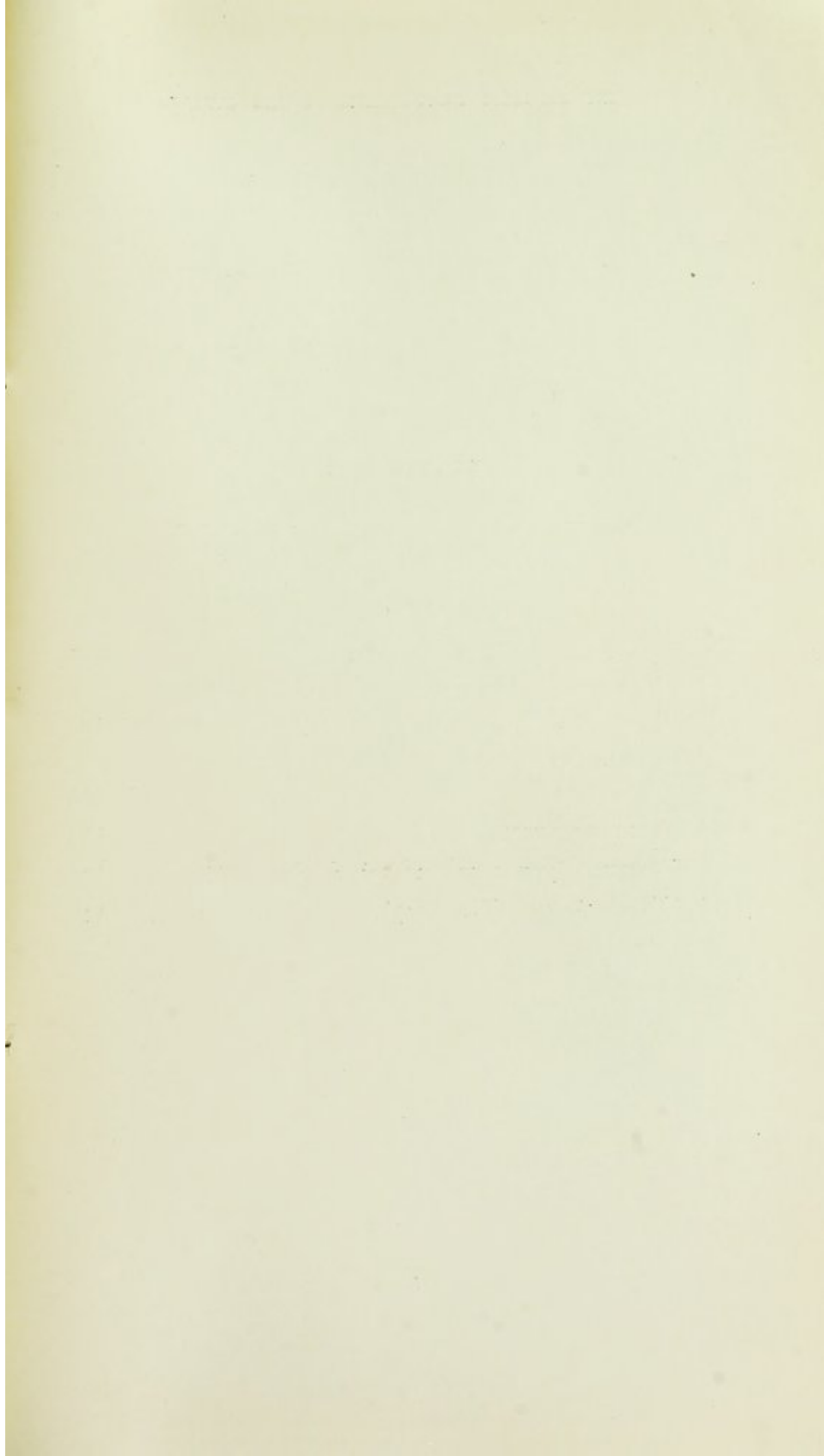


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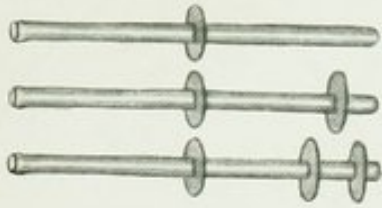
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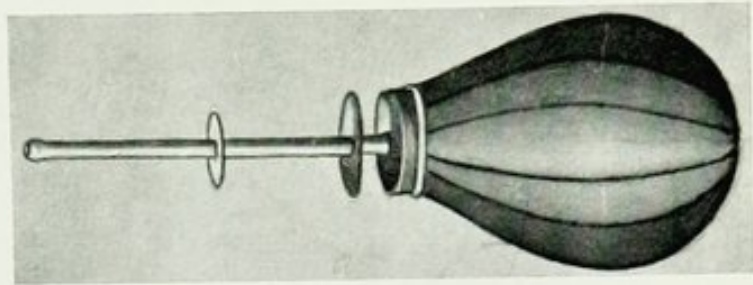
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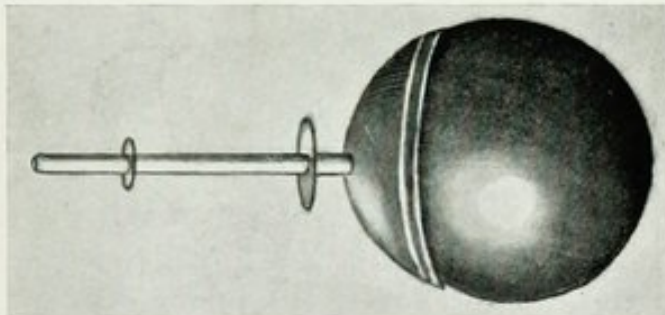
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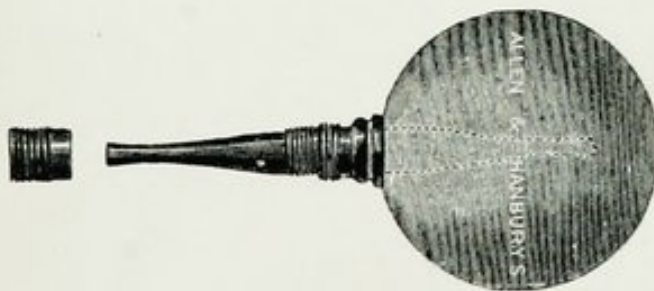
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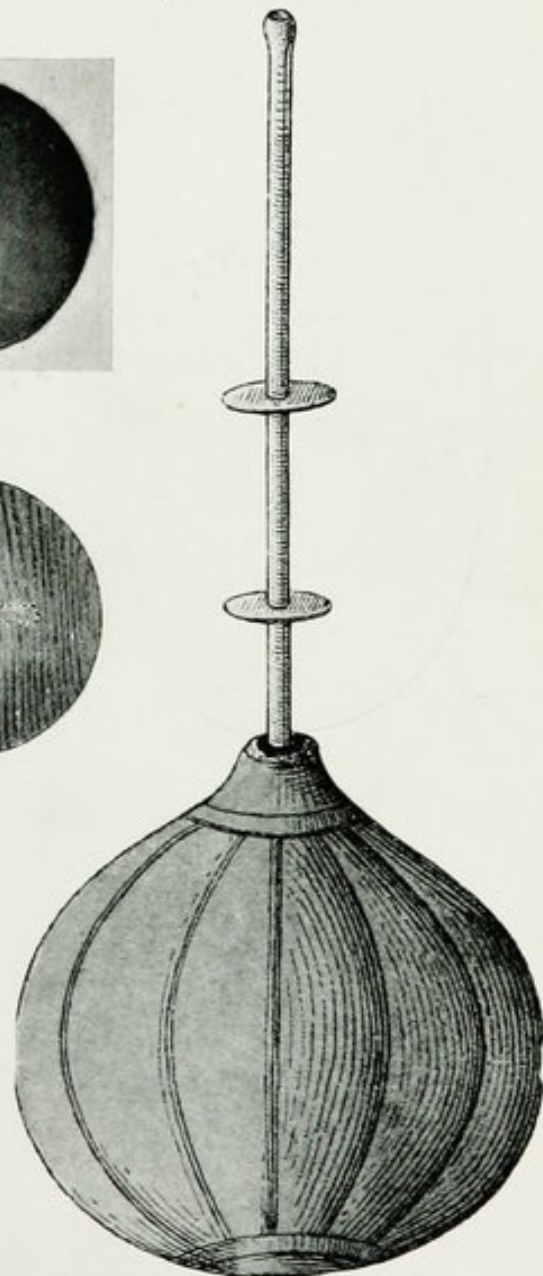
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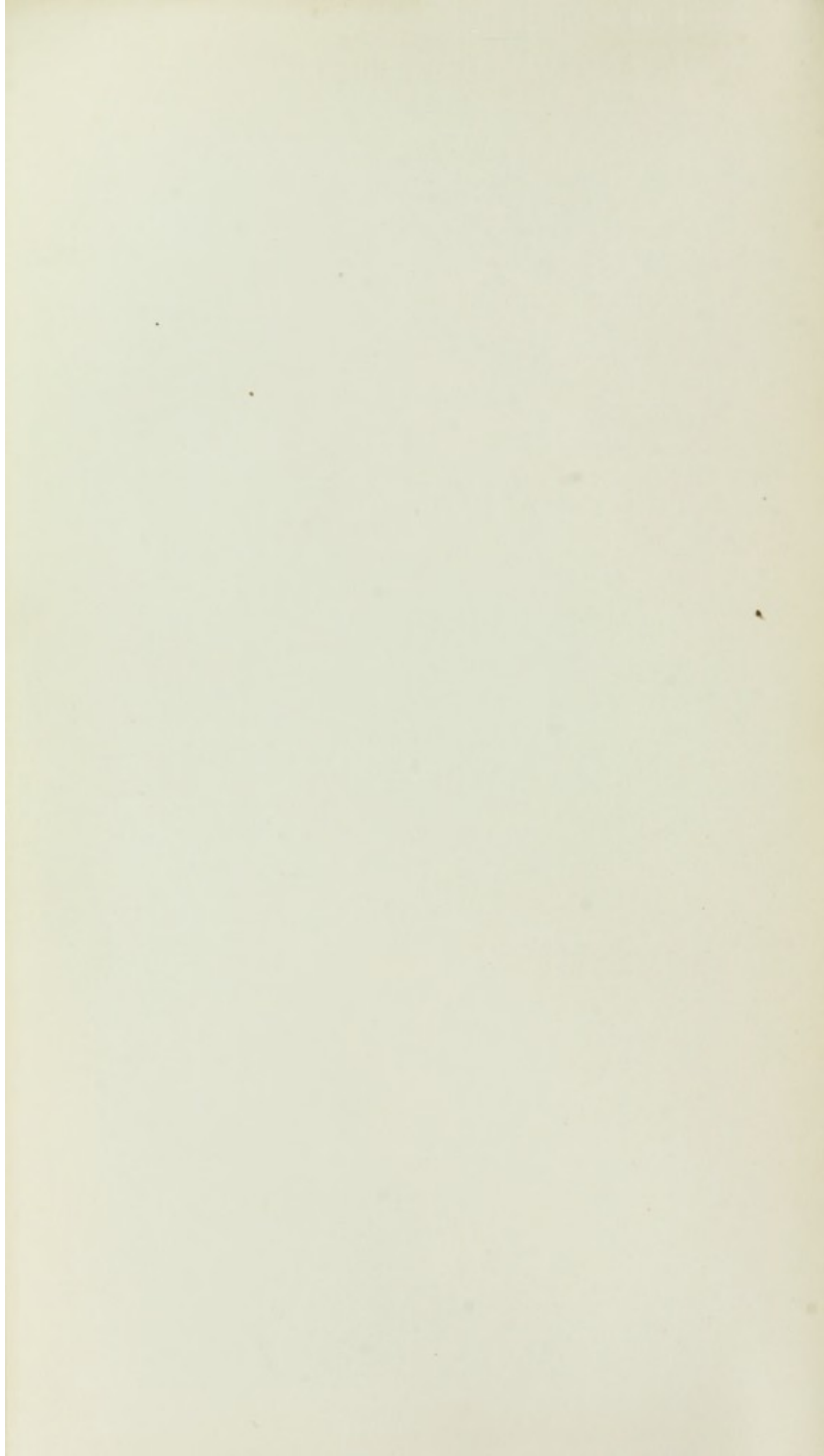


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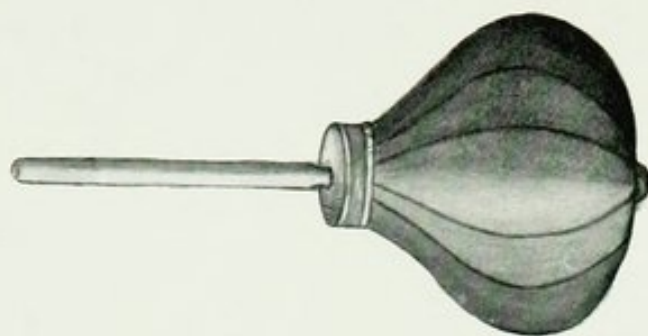
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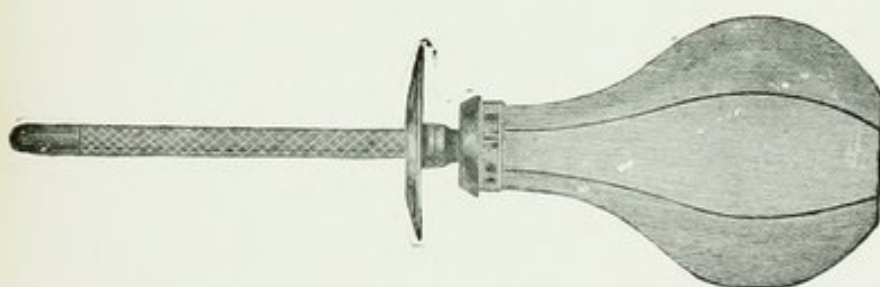
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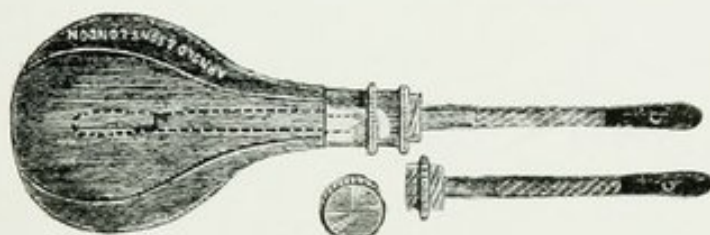
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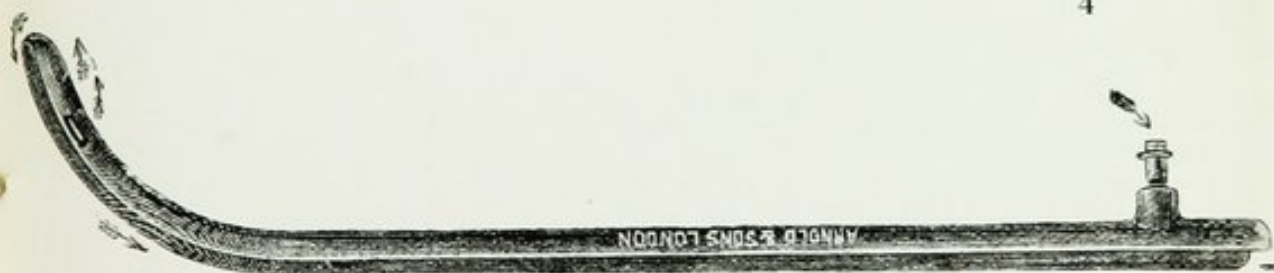
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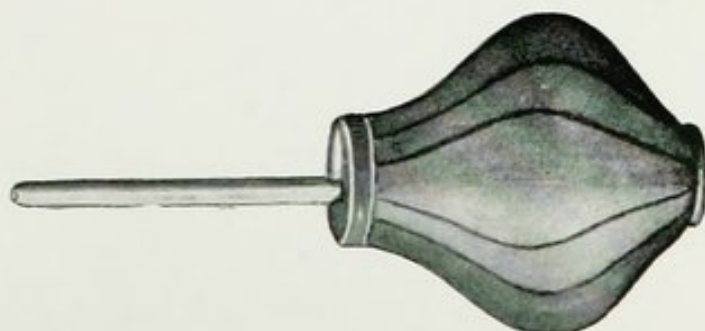
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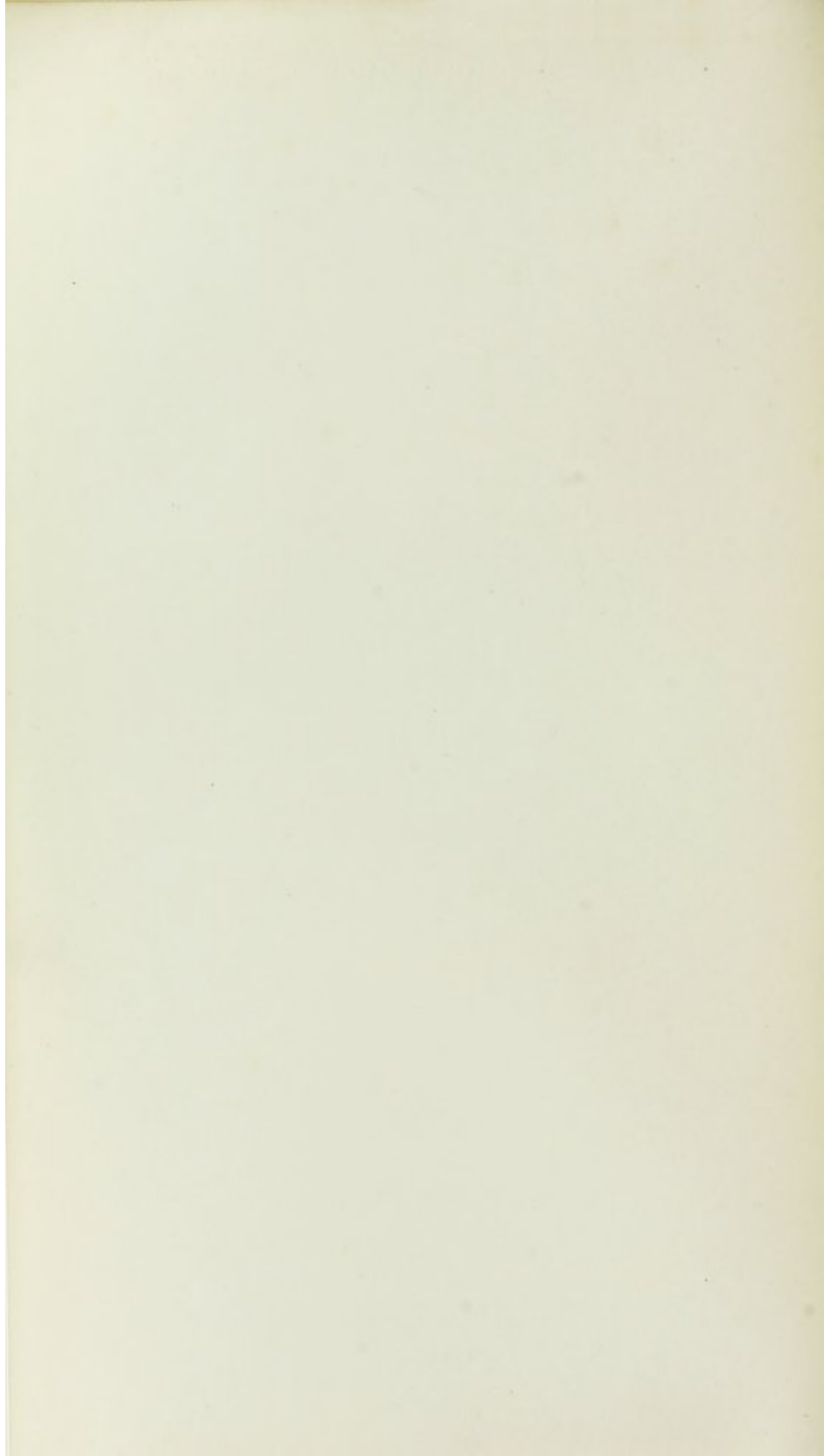


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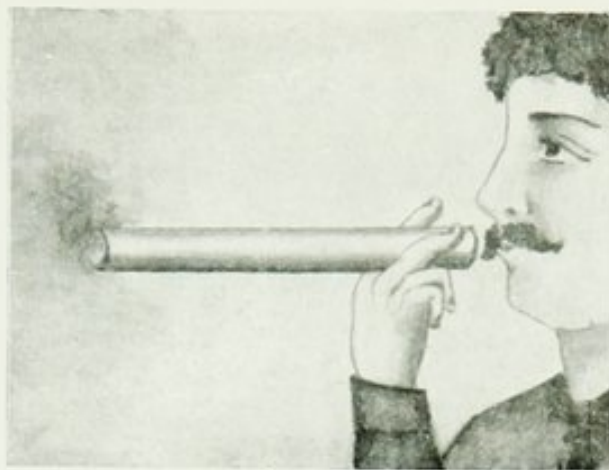
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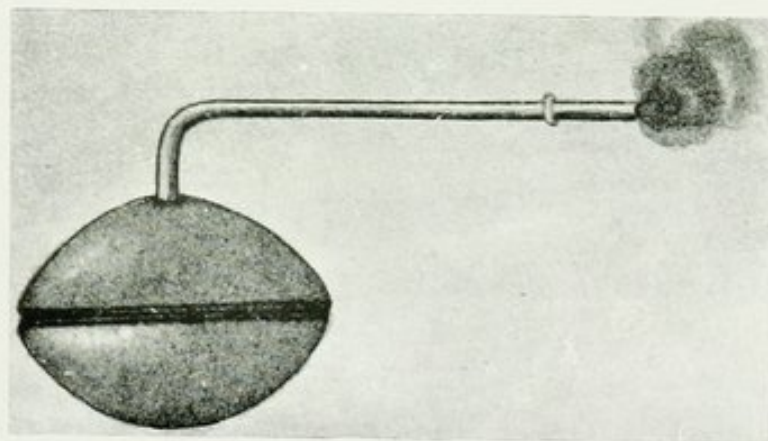
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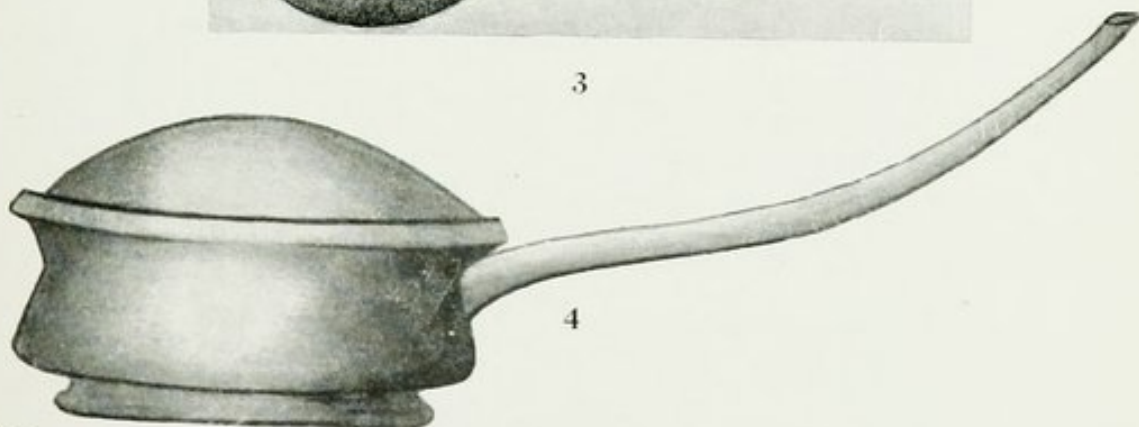
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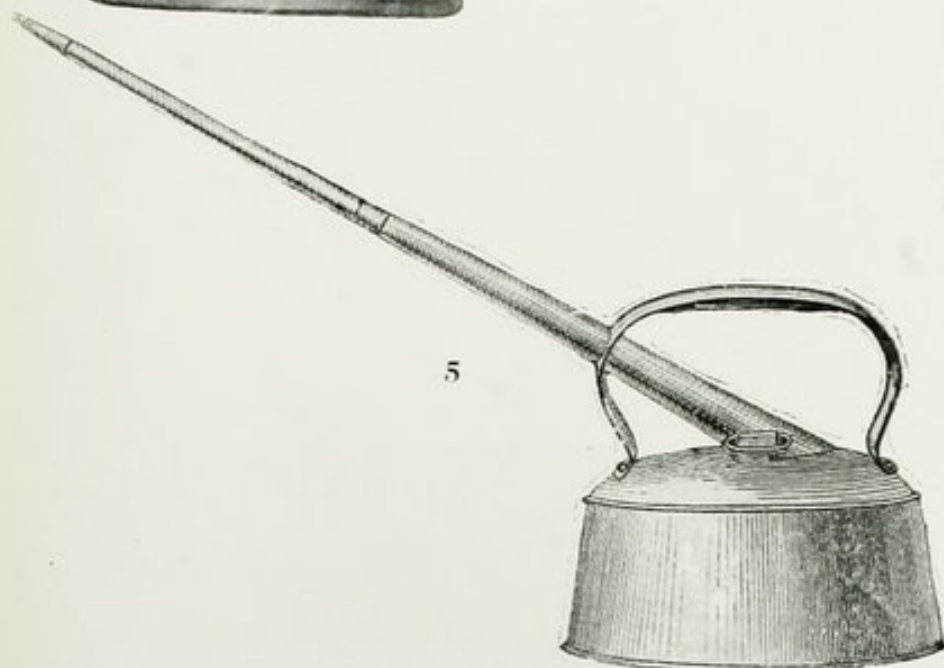
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GENERAL STATEMENT OF THE LANDS OF THE UNITED STATES

1860	1870	1880	1890	1900
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
1,000,000	1,000,000	1,000,000	1,000,000	1,000,000

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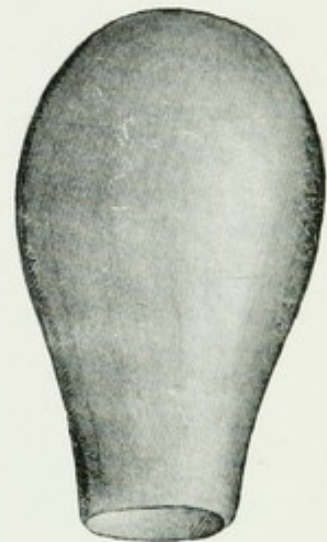
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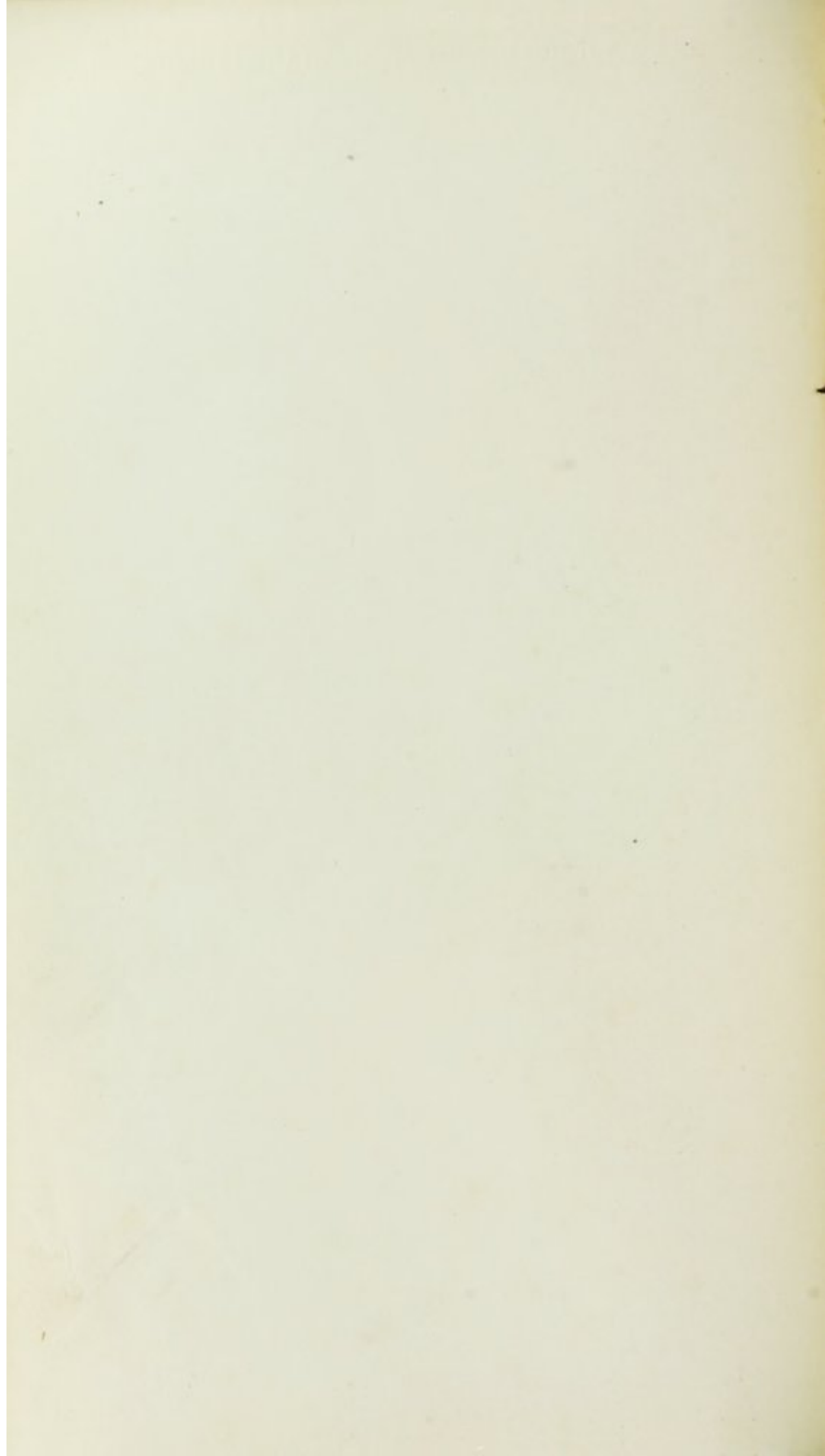
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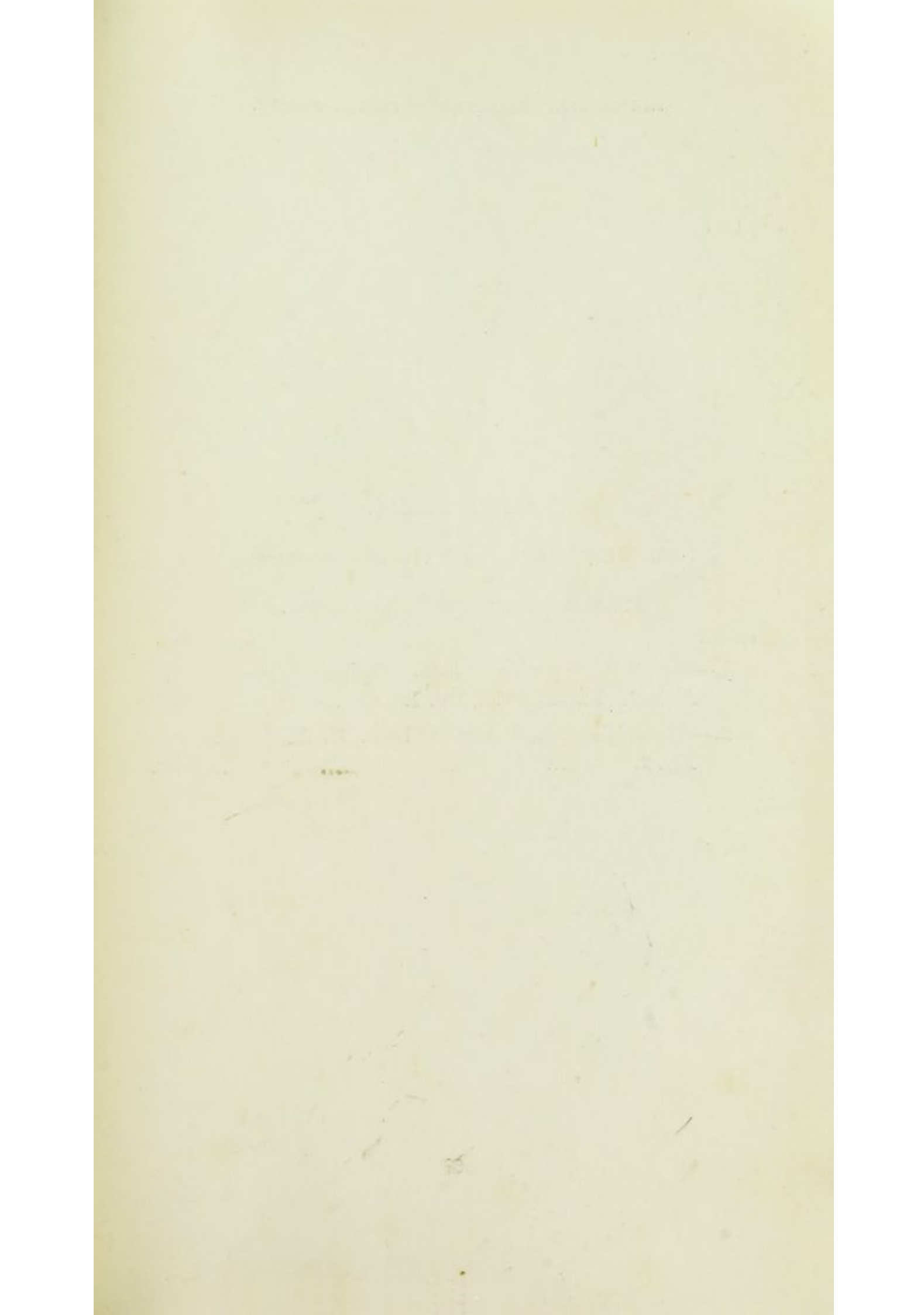


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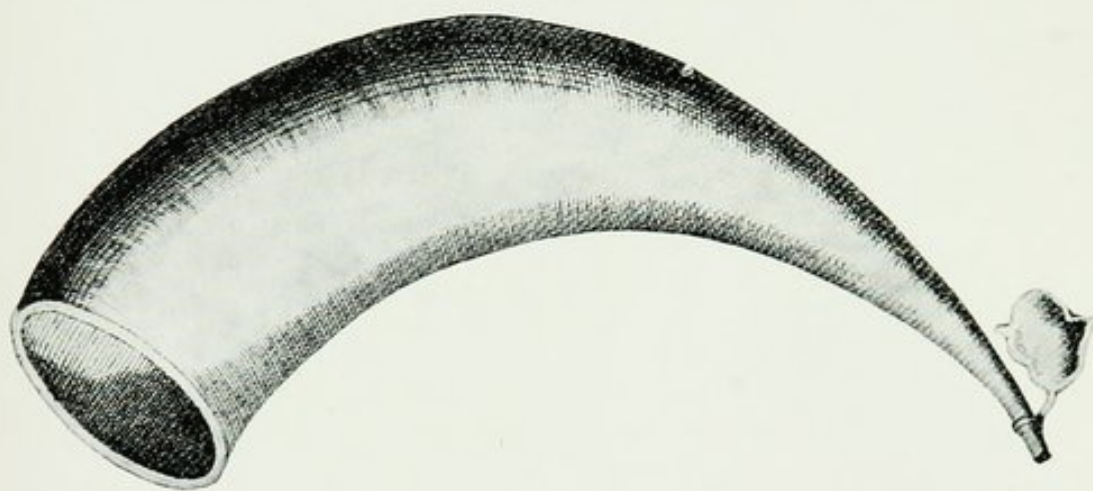
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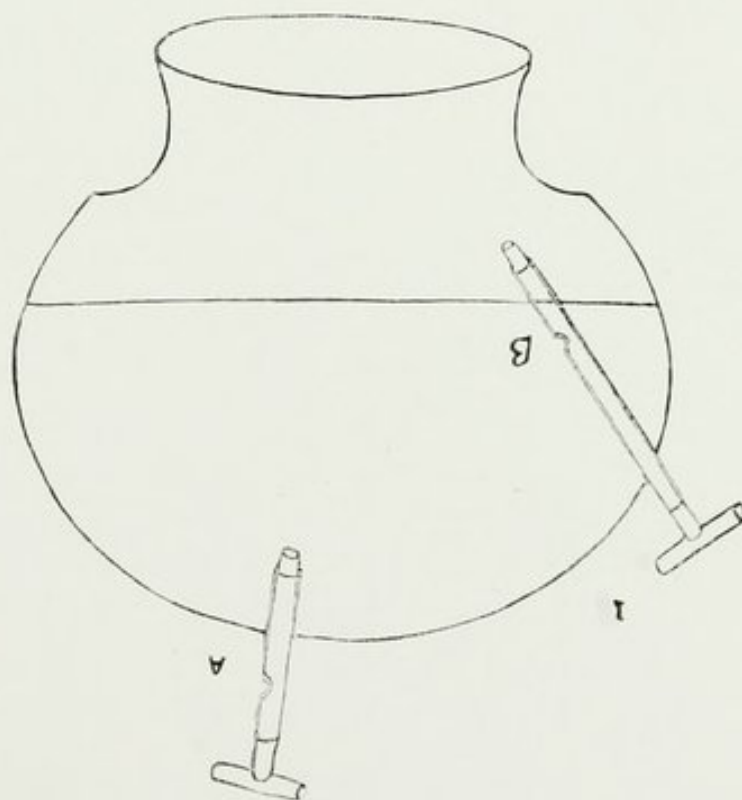
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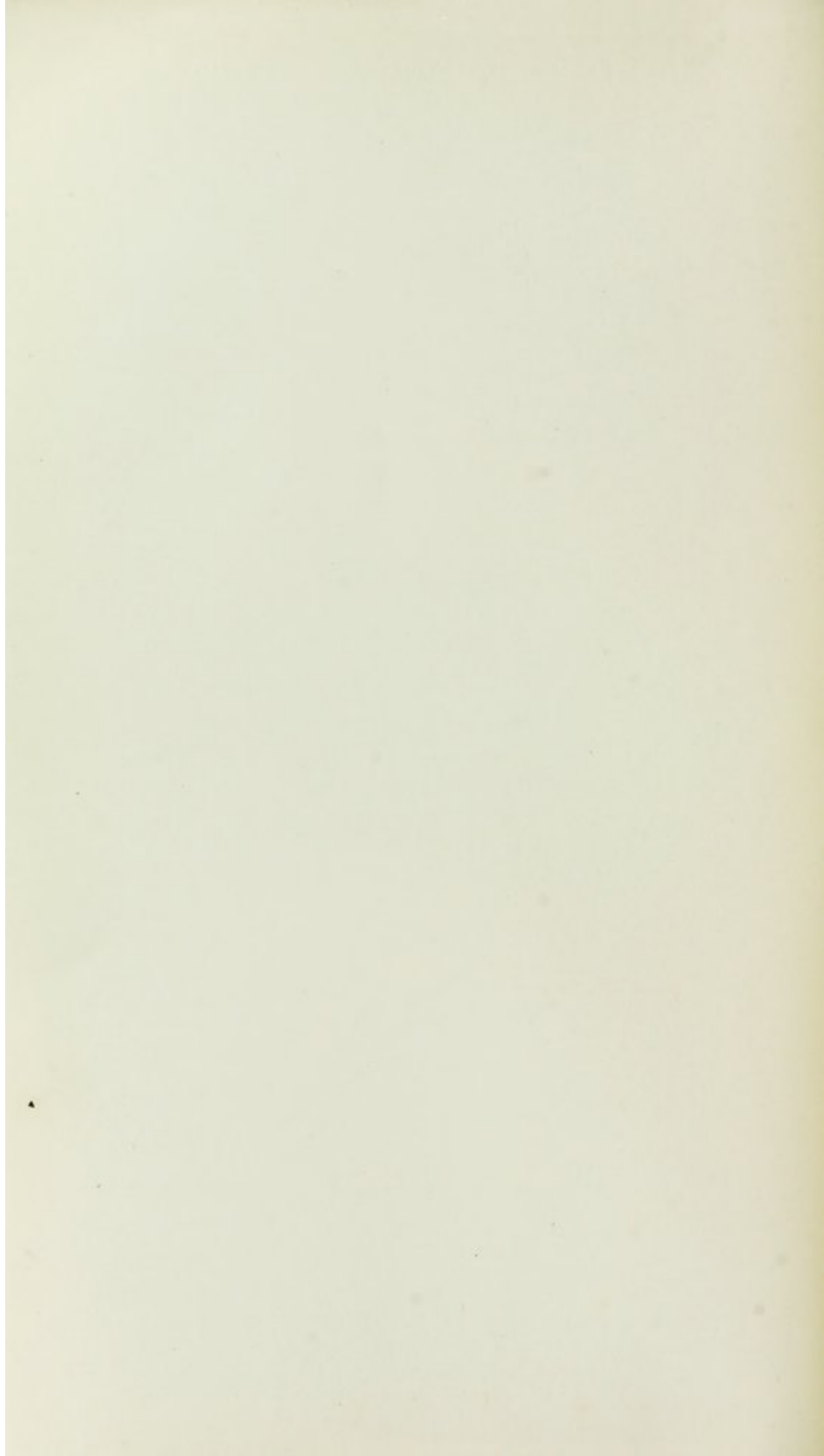
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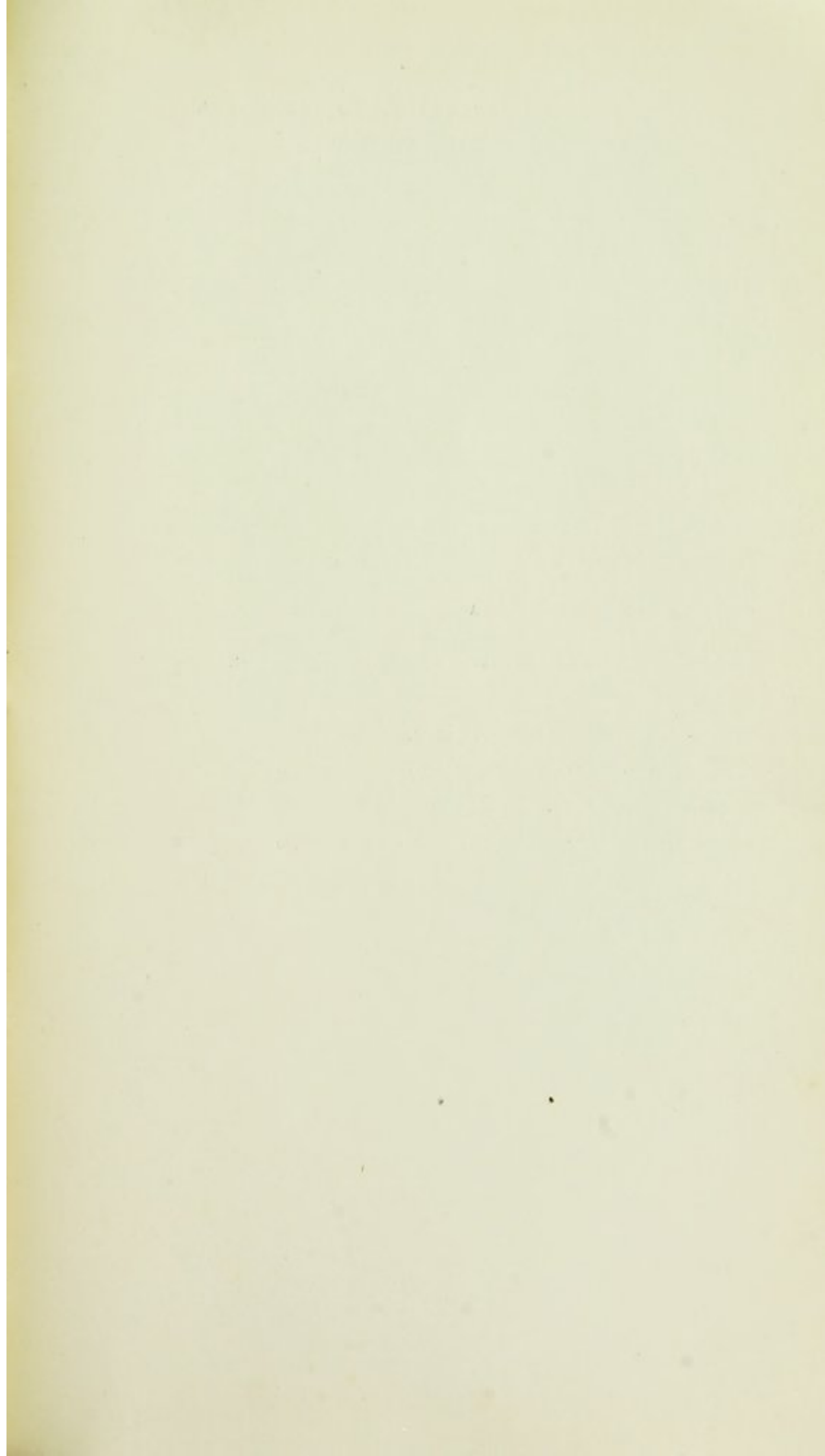


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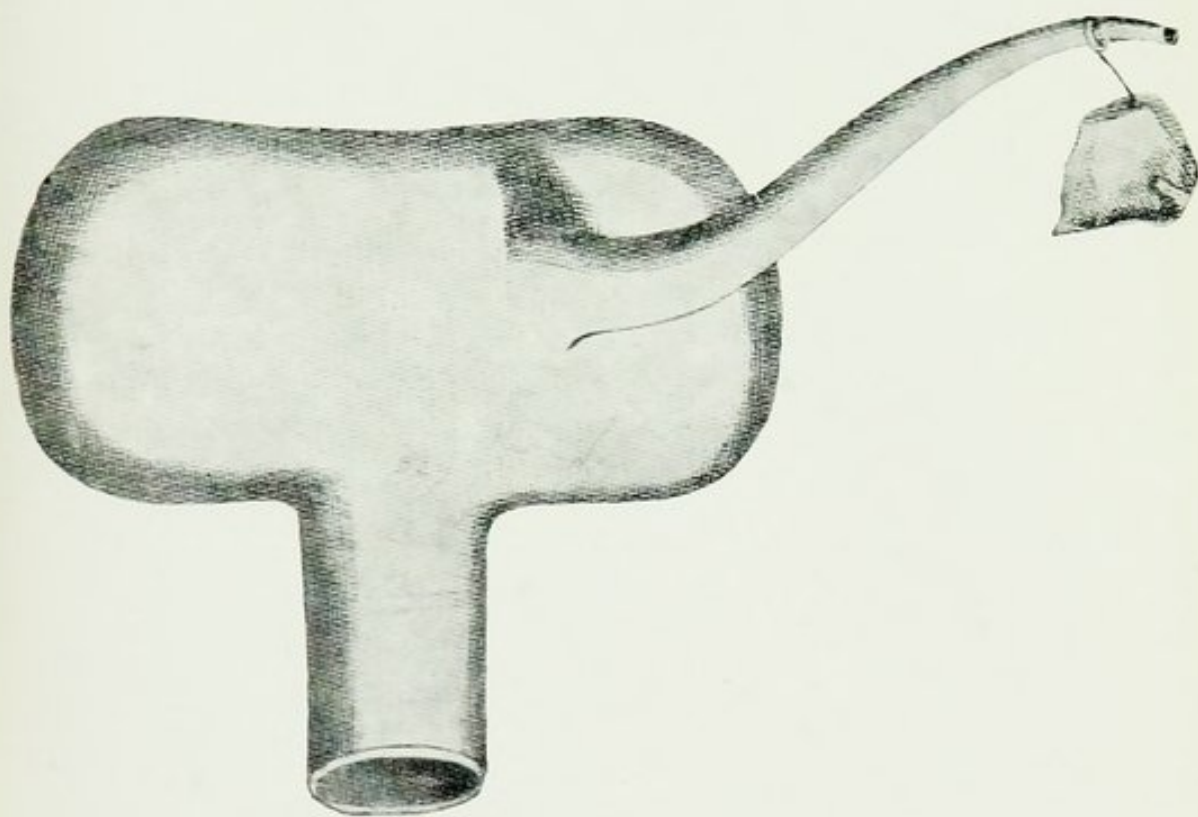
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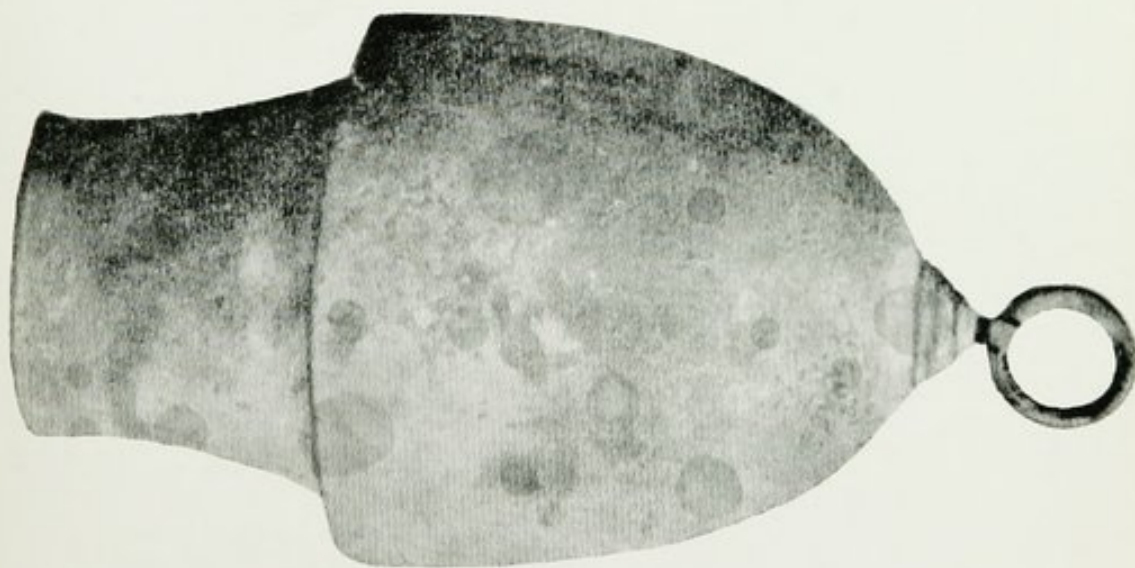
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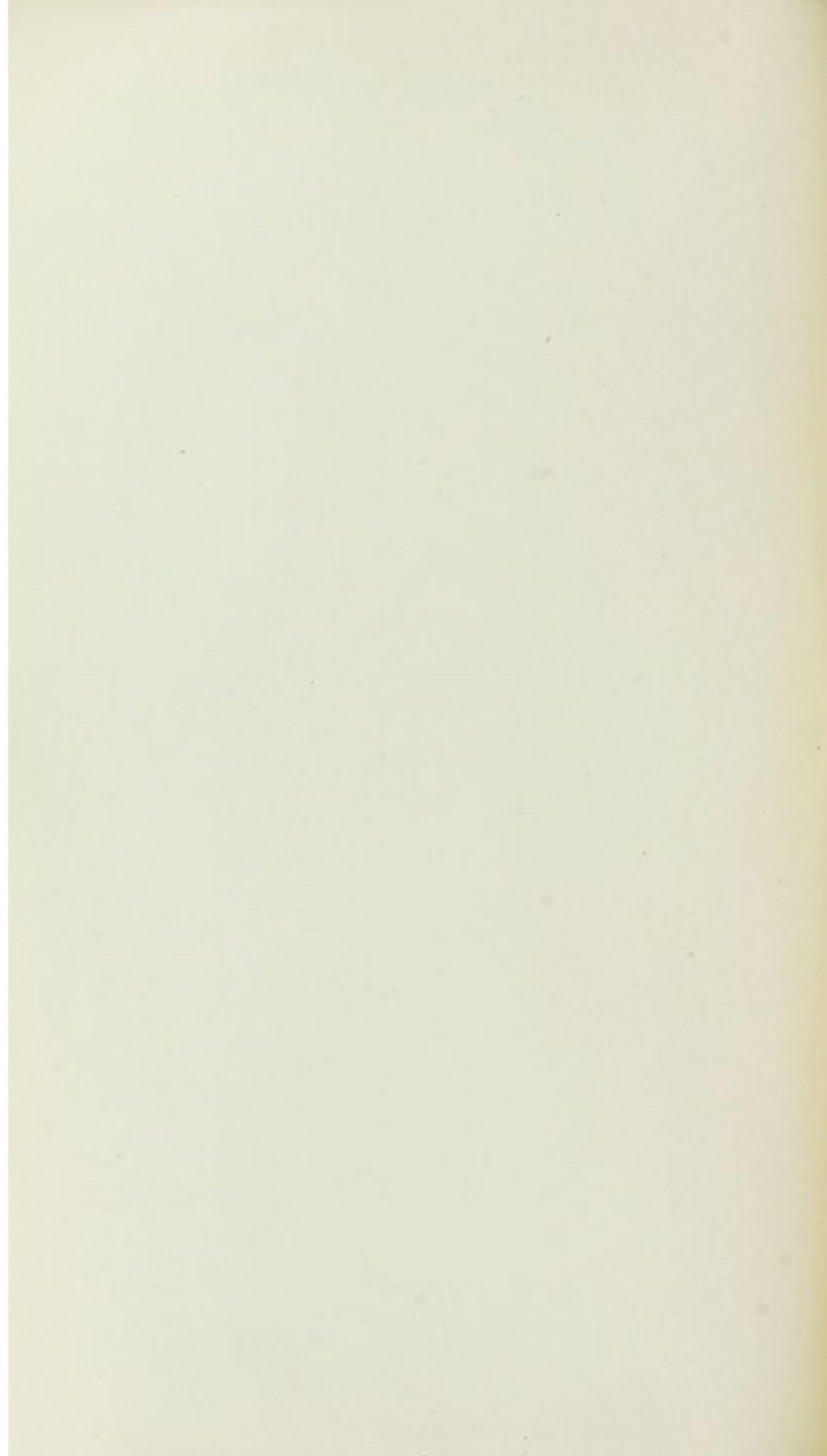
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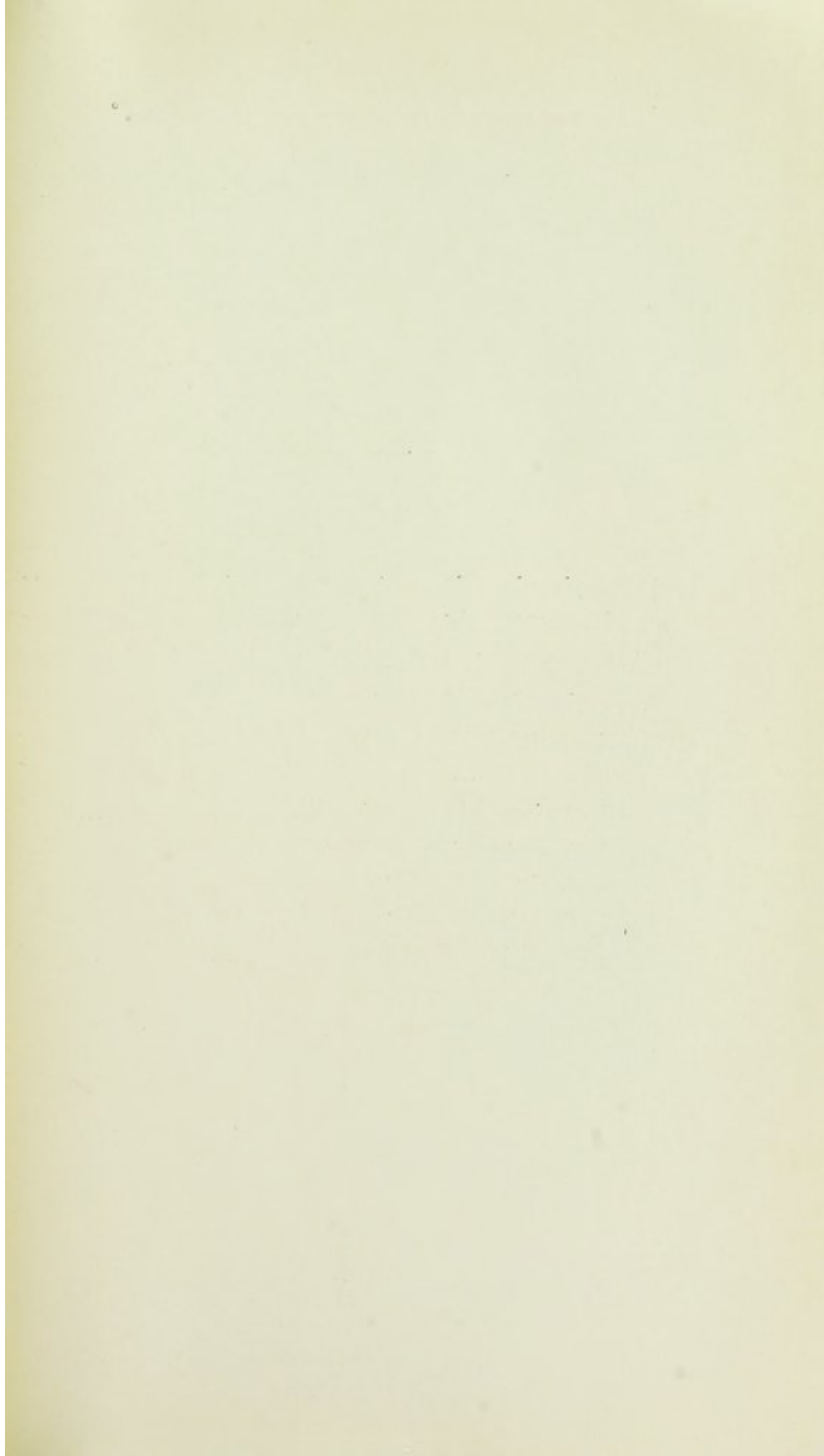
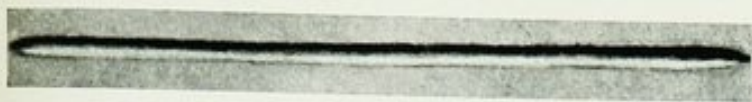


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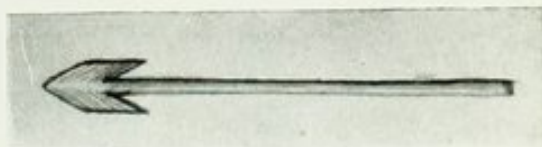
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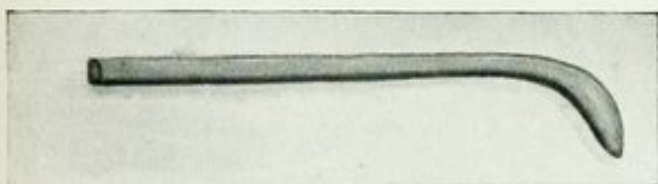
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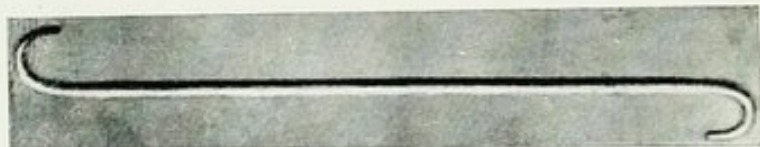
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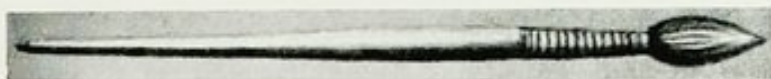
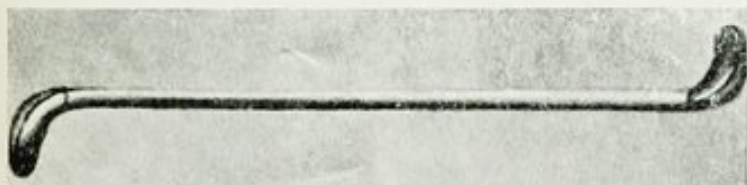
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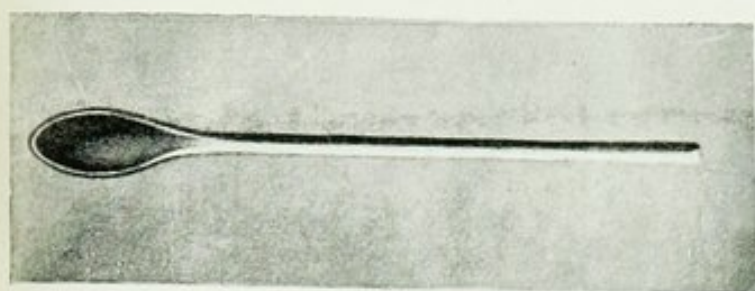
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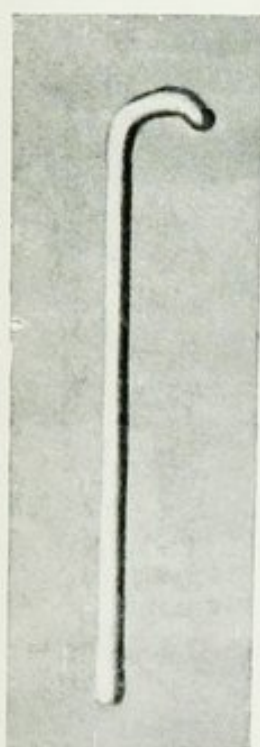
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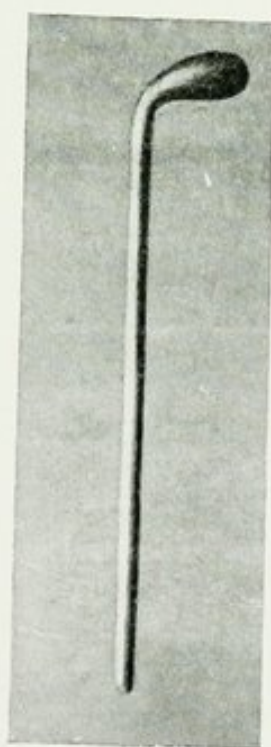
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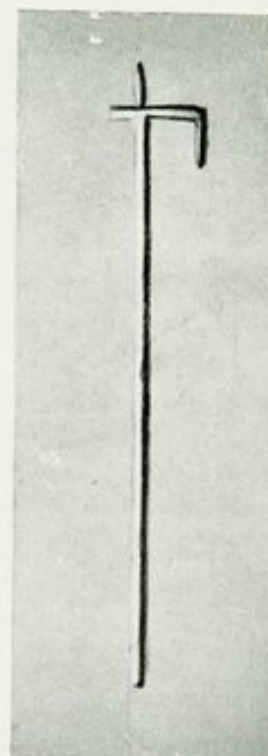
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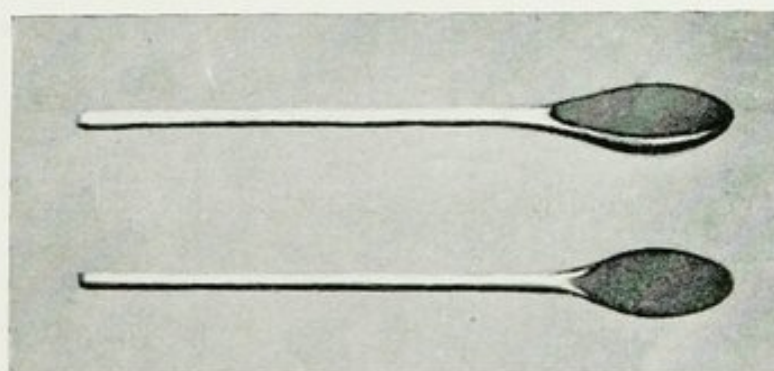
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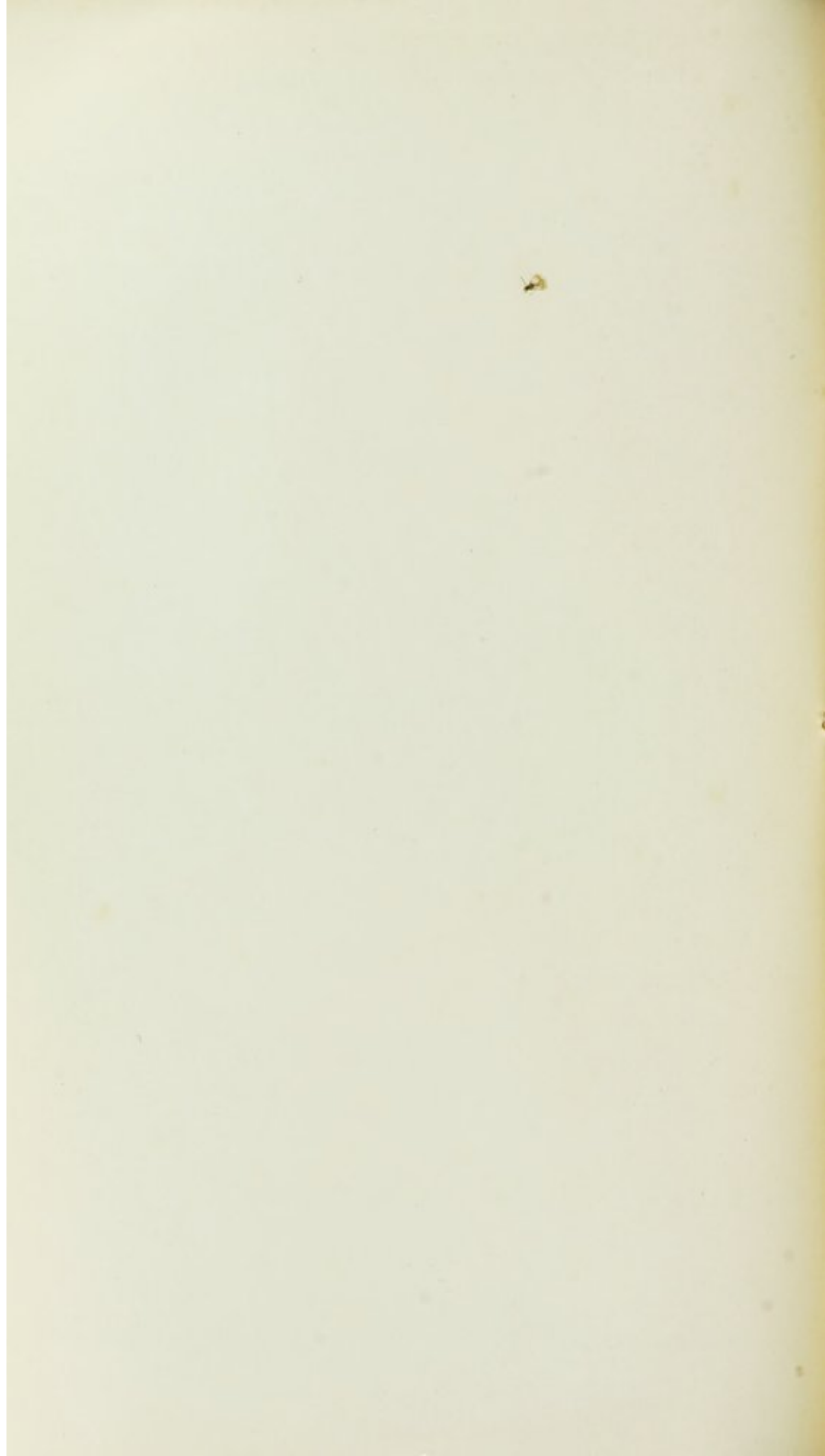
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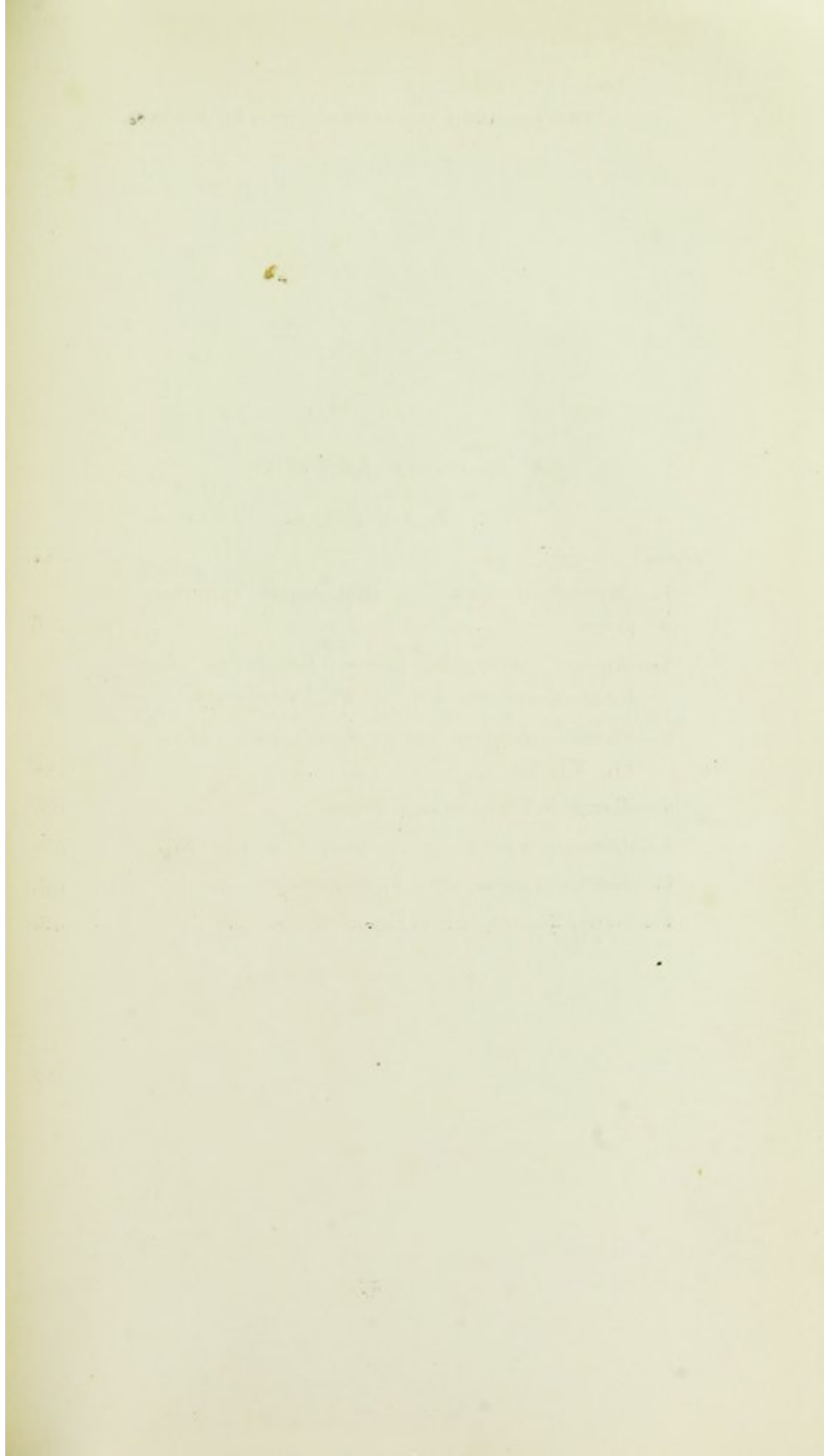


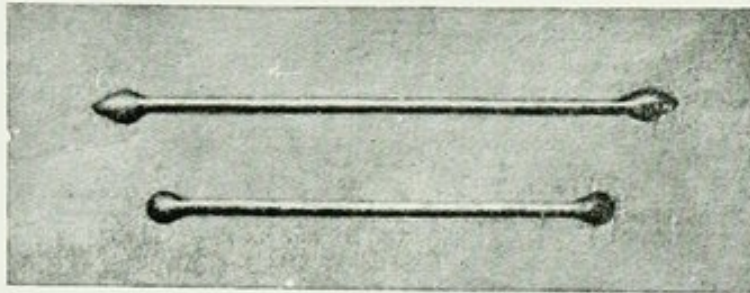
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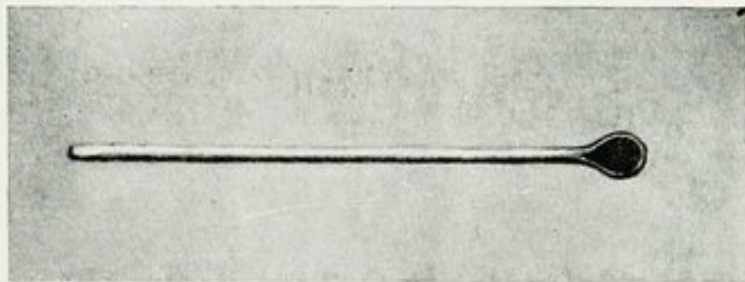
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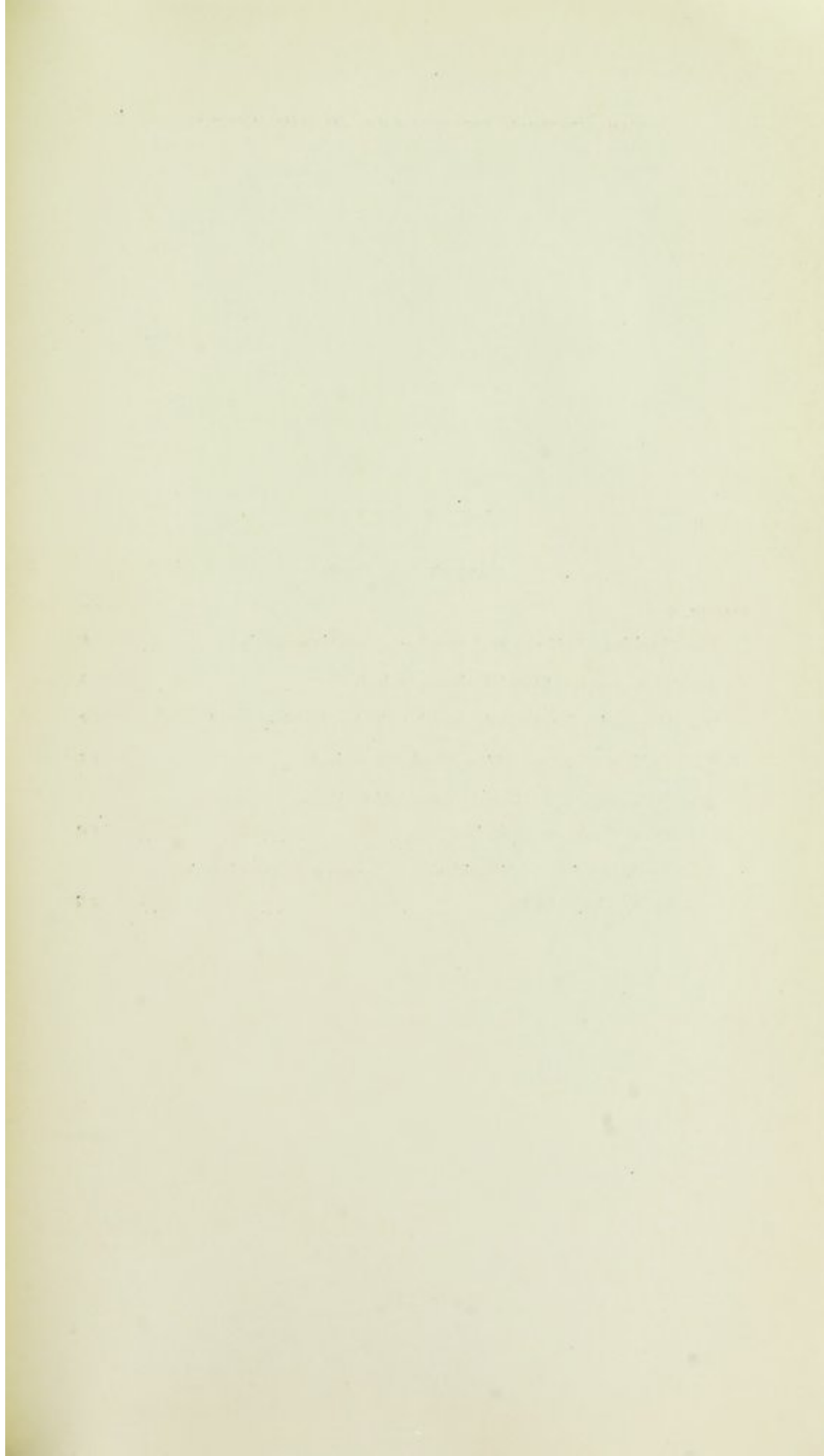


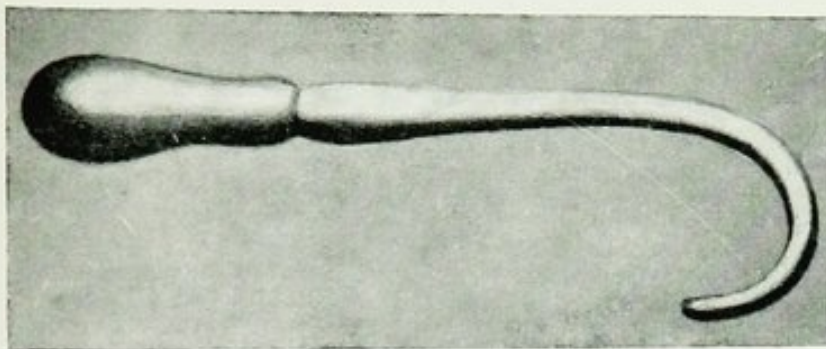
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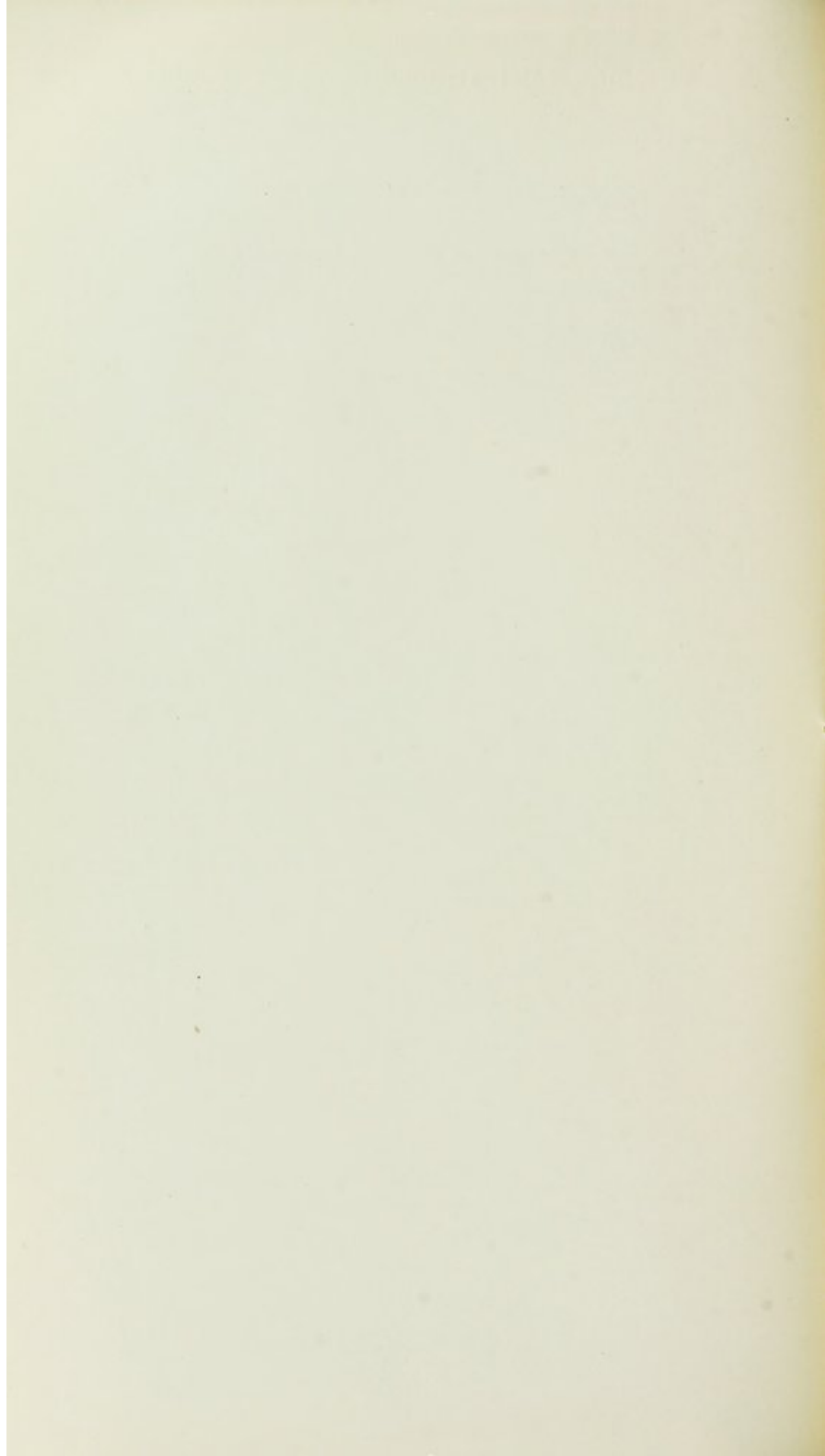
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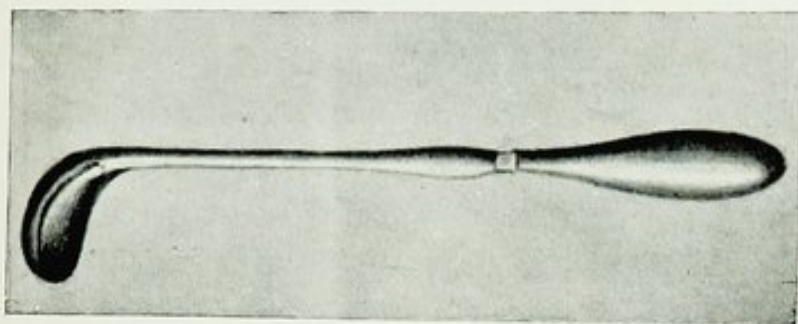
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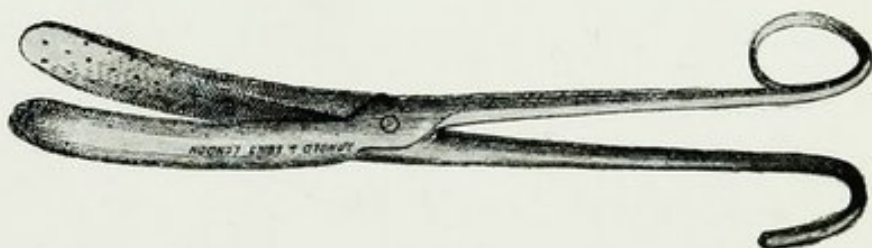
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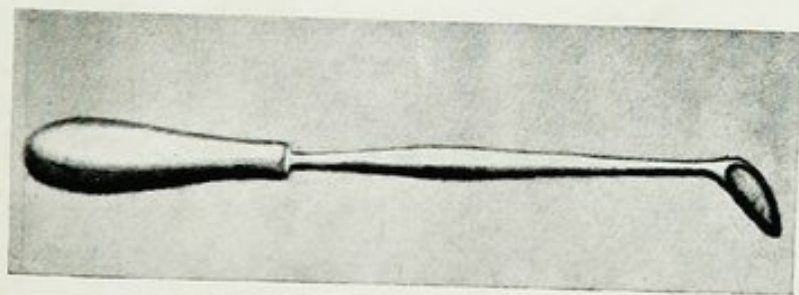
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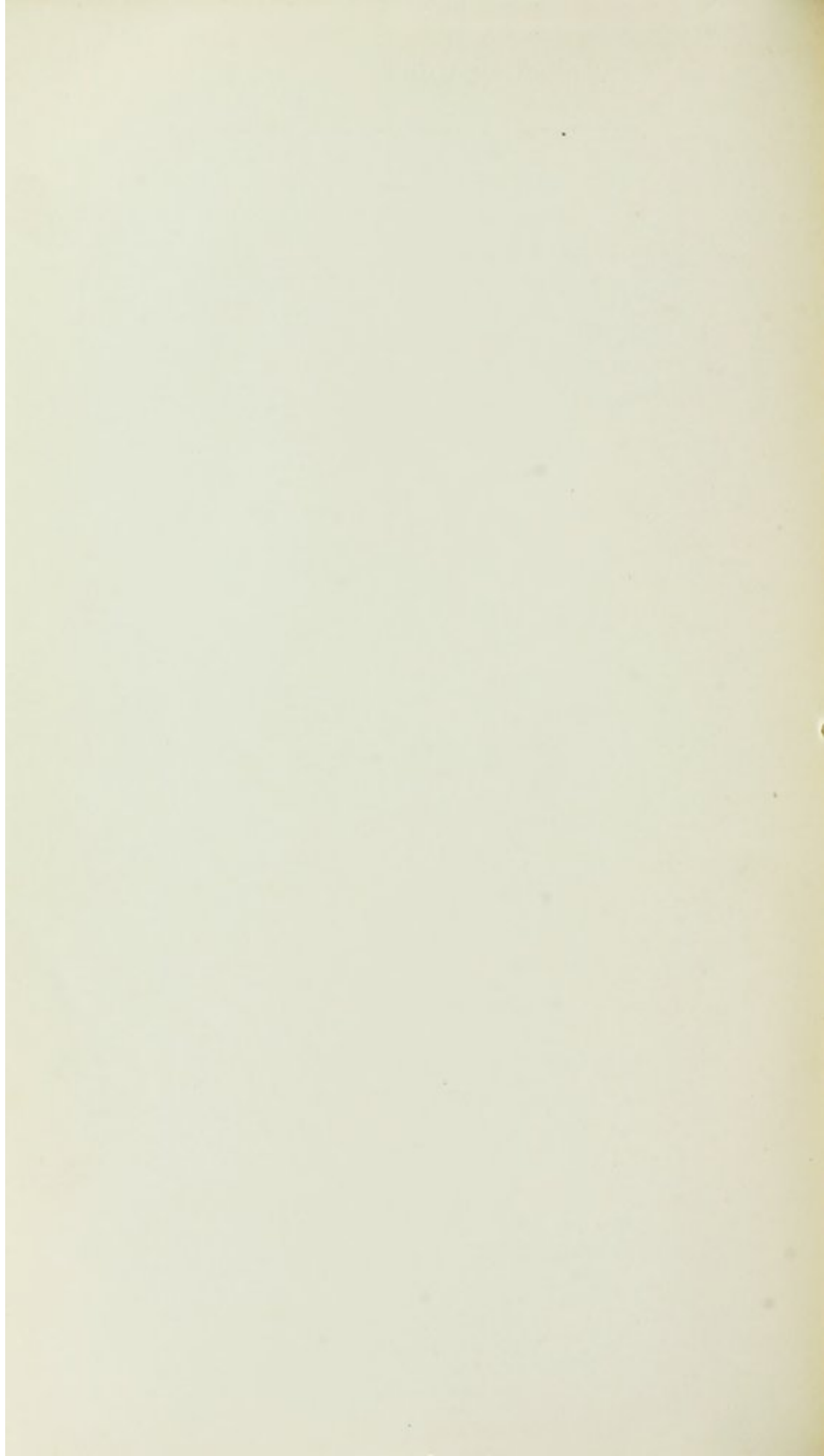
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1914	1913	1912	1911	1910
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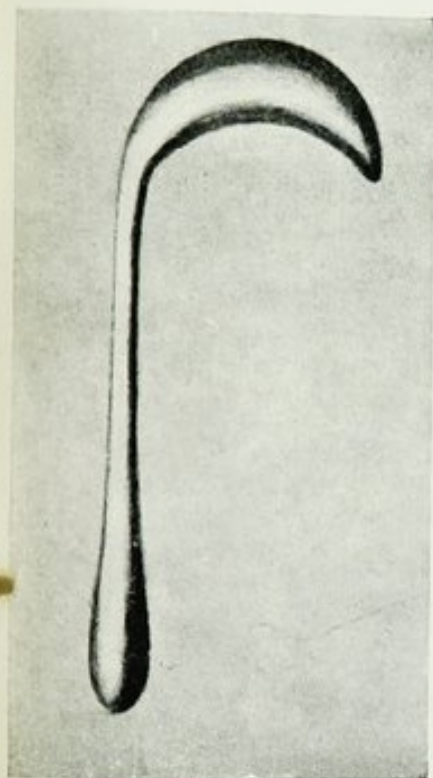
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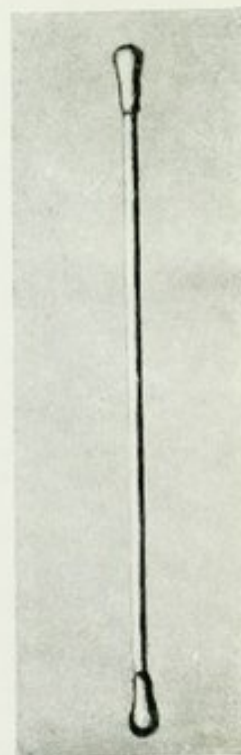
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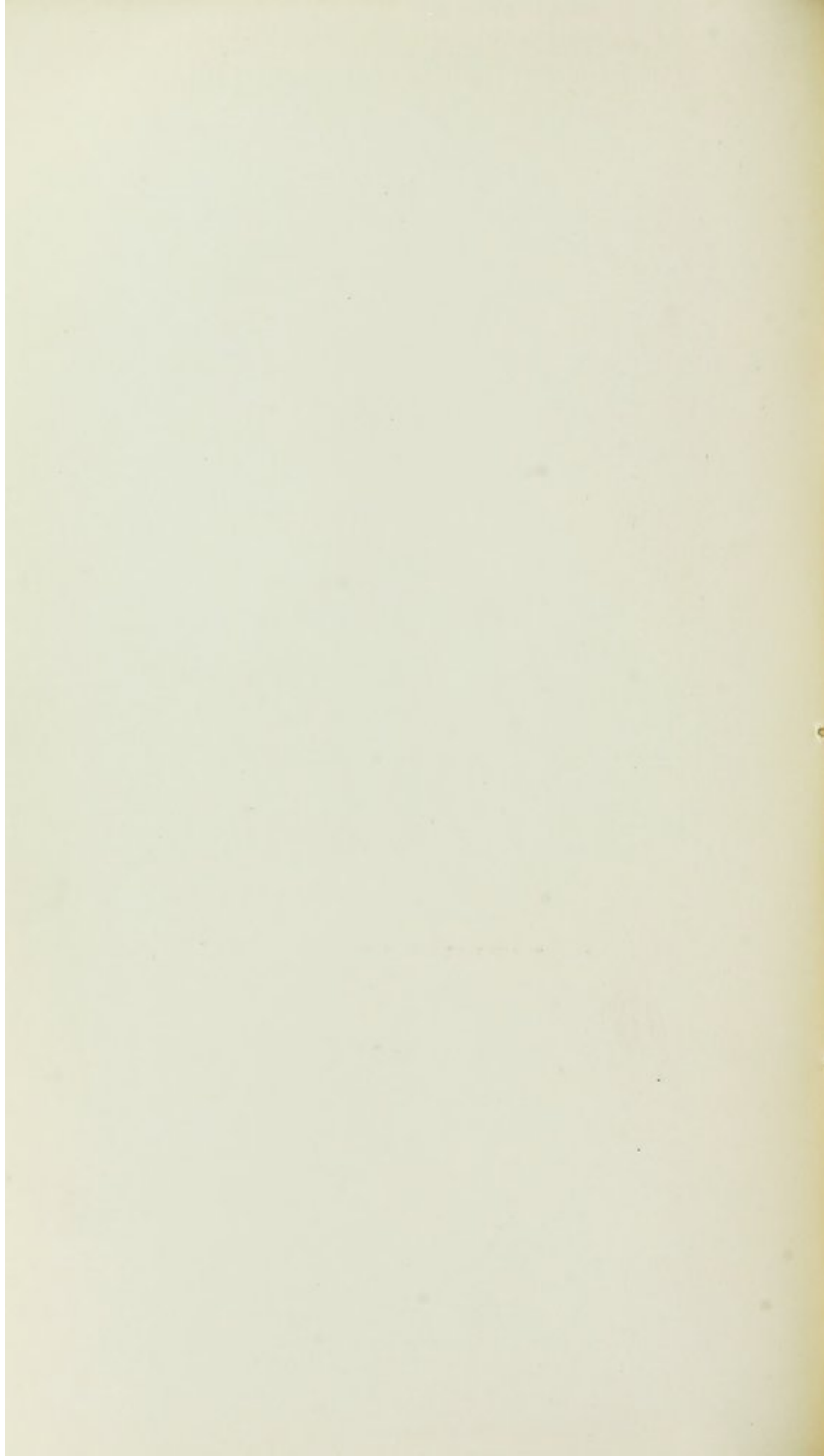
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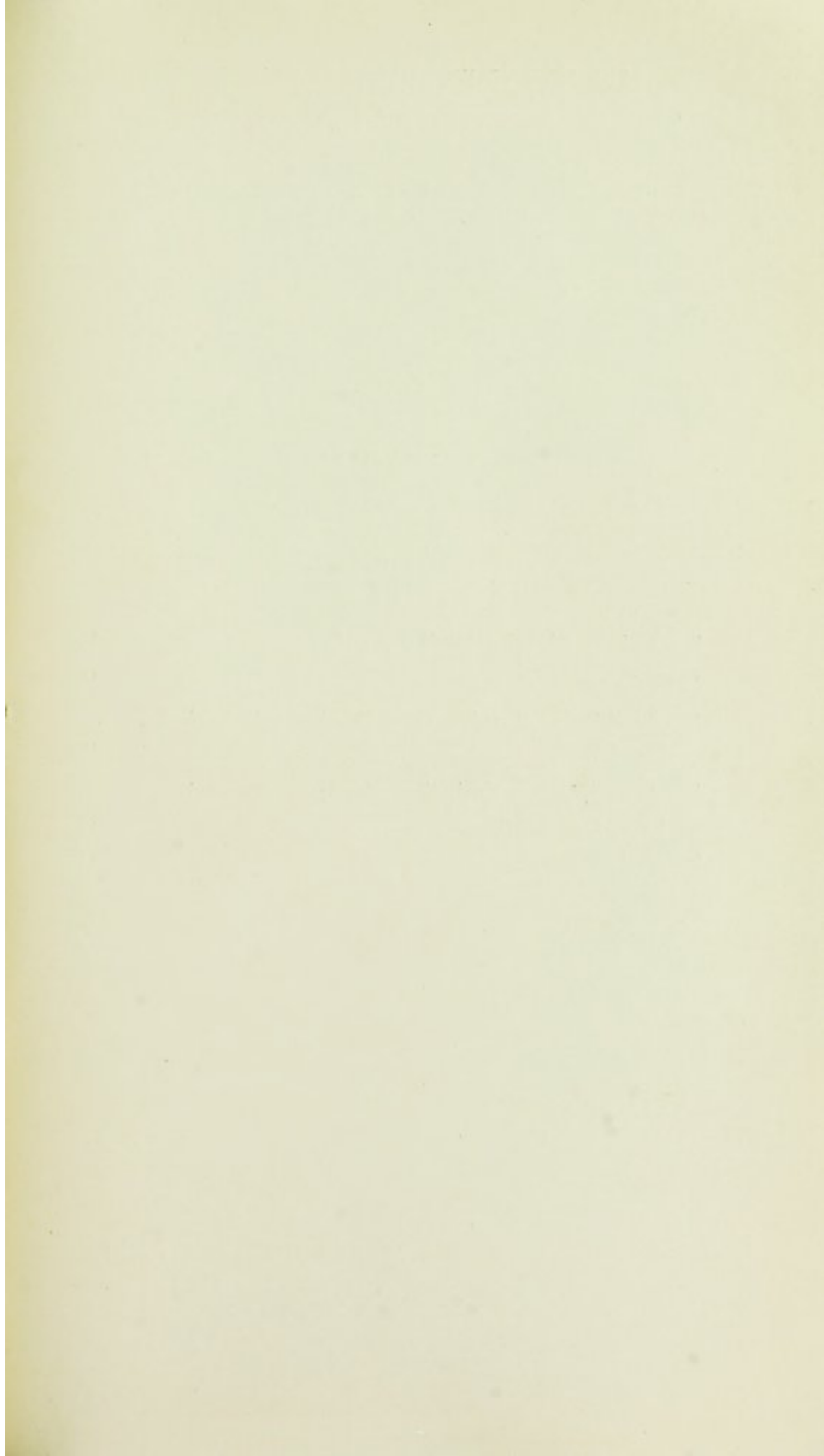


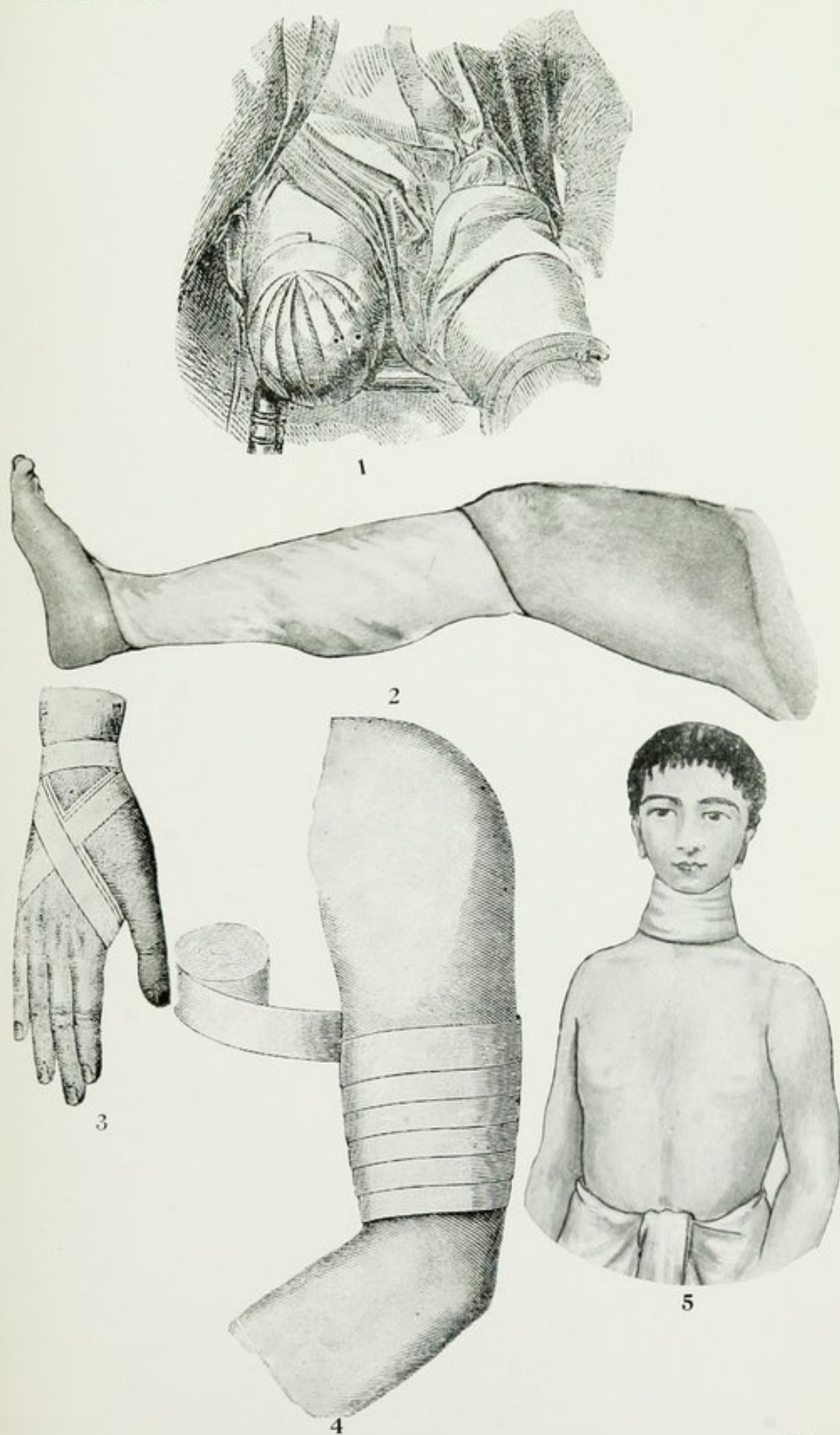
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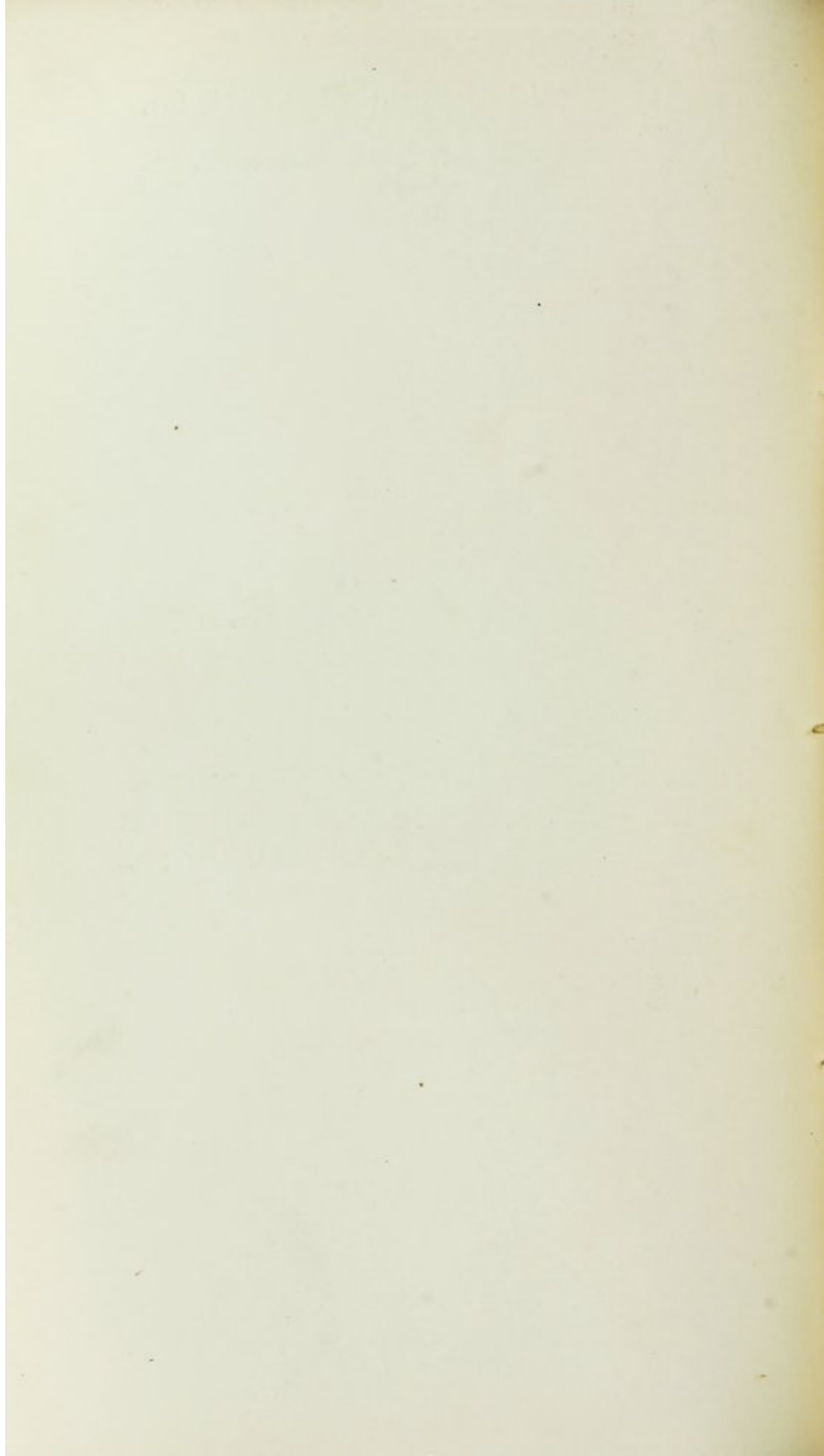
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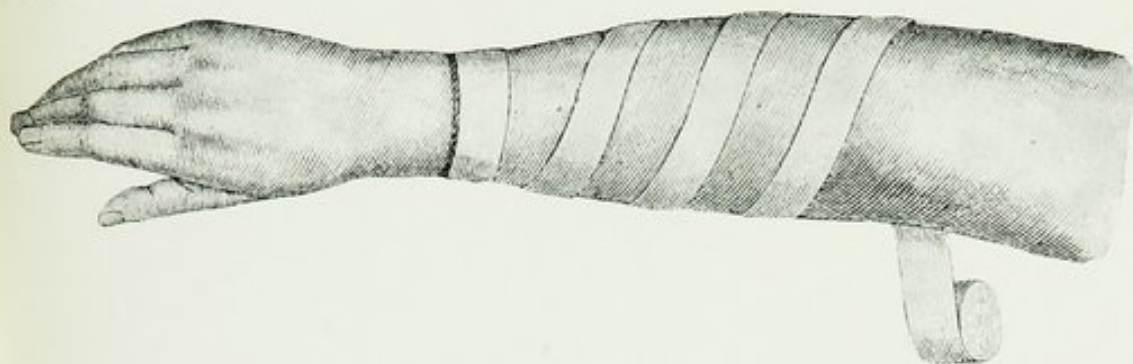
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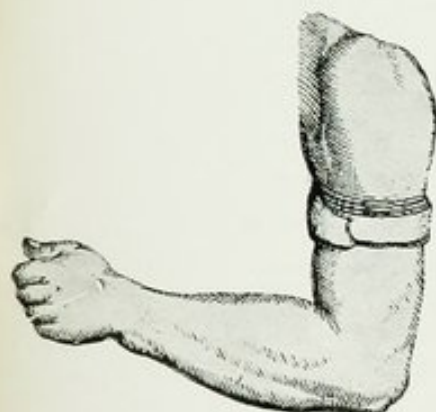
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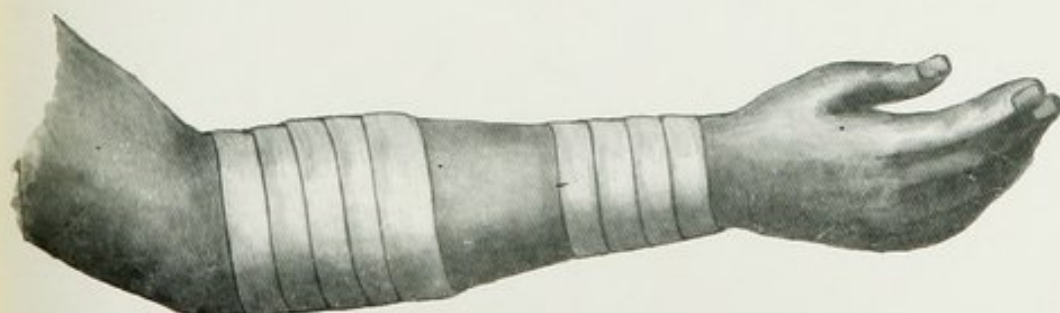
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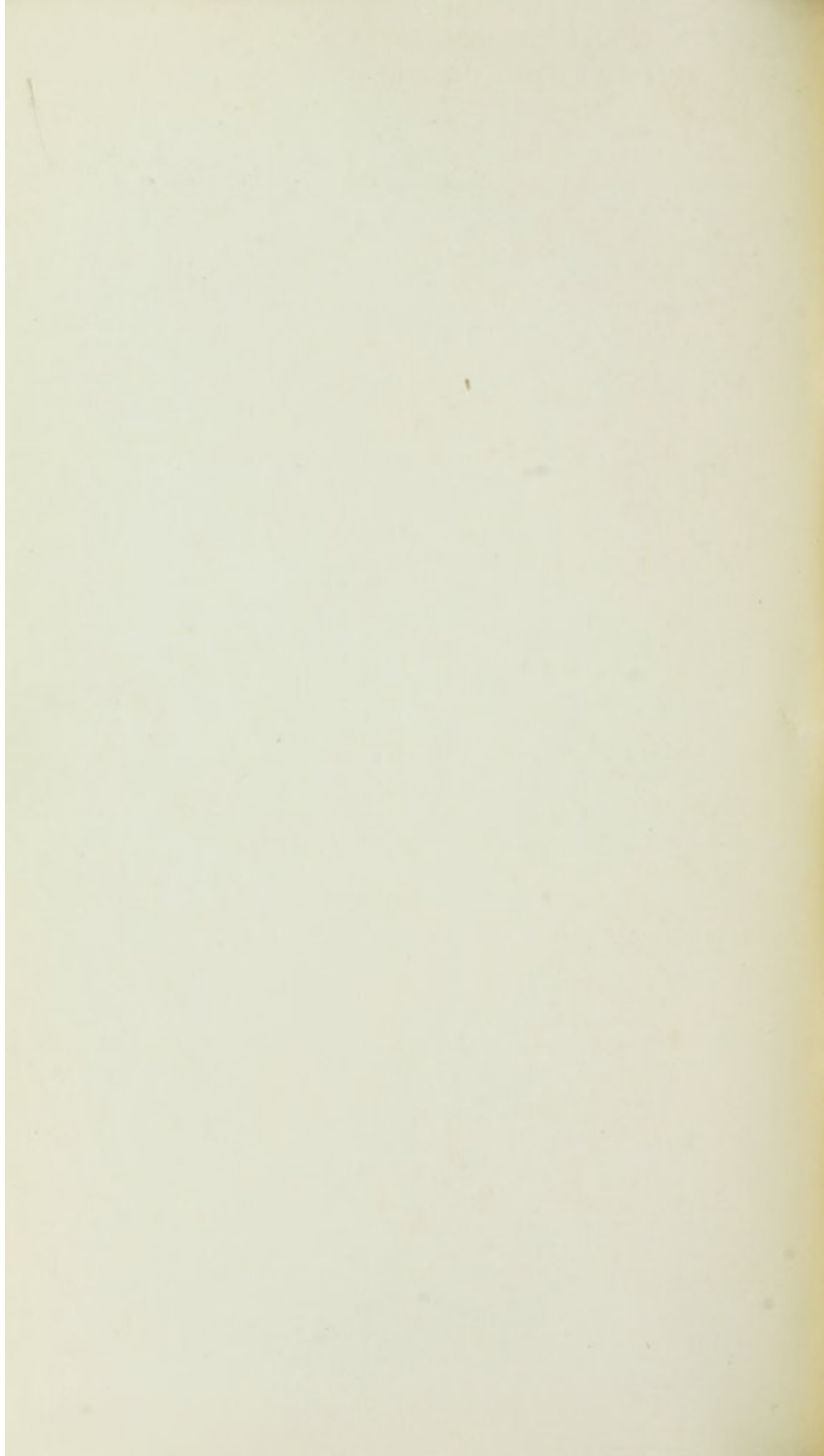
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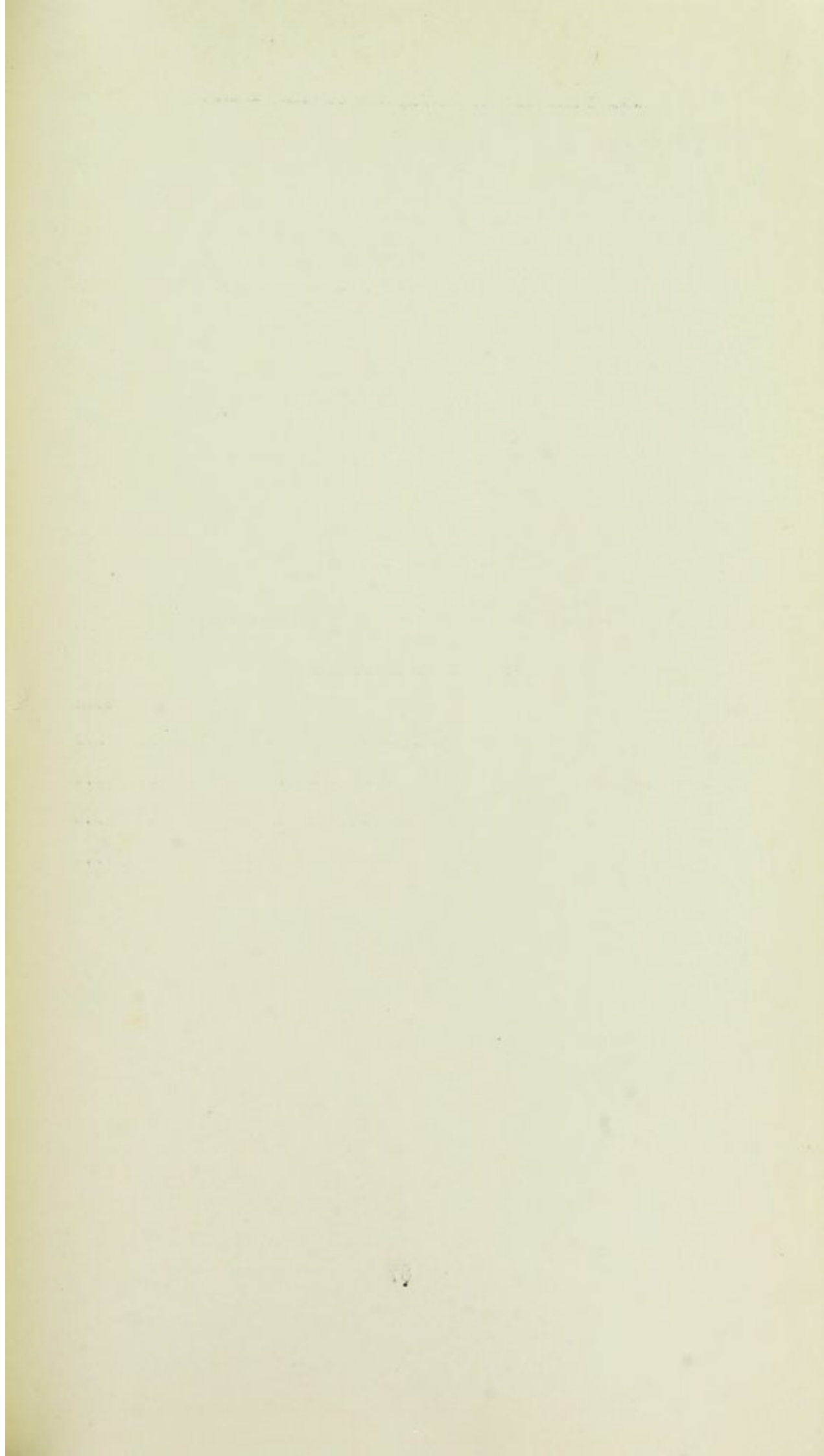


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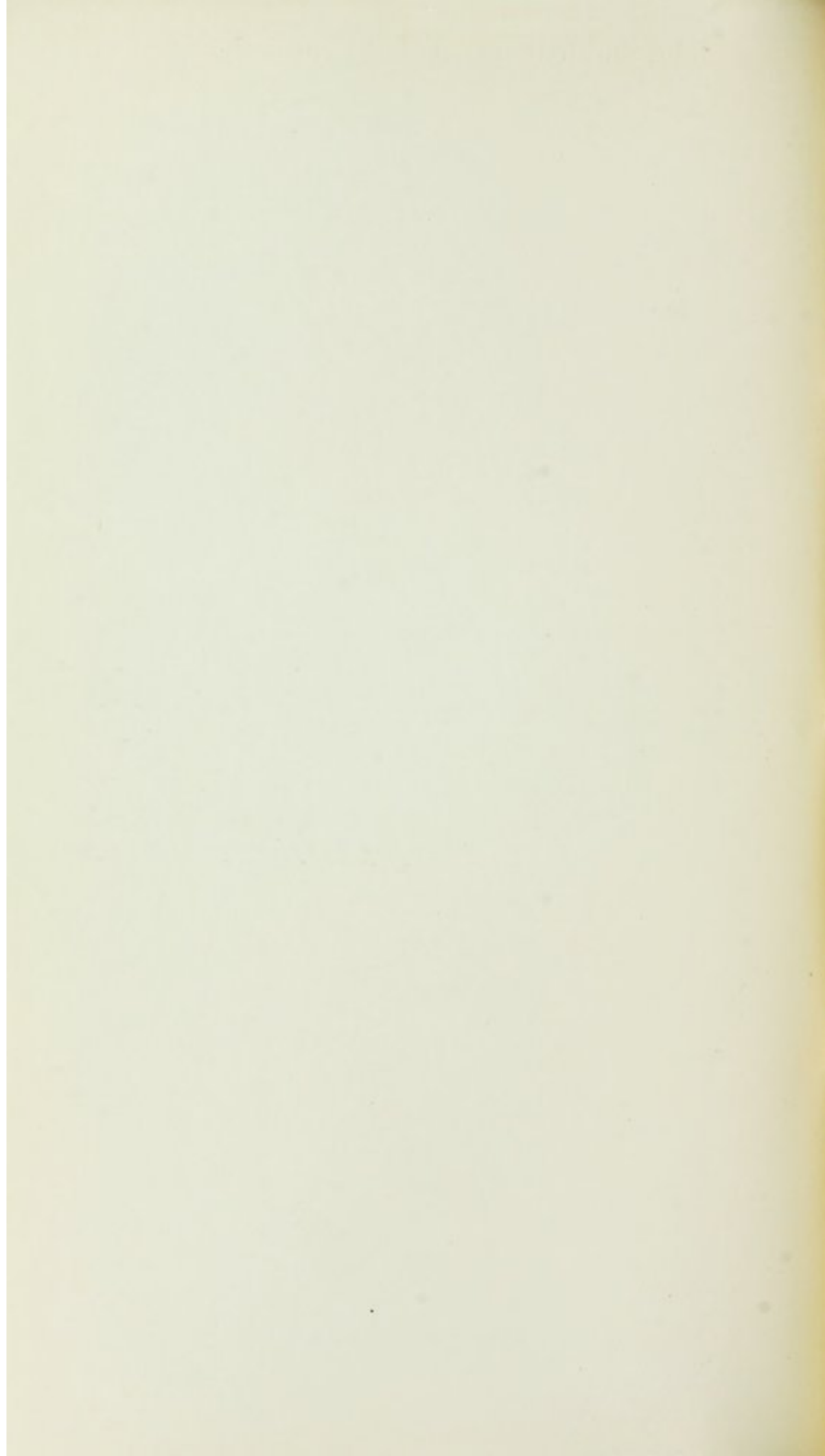
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CHAPTER I

THE FIRST SETTLEMENTS IN THE UNITED STATES

Year	Settlement	Number of Settlers
1607	Jamestown, Virginia	100
1620	Plymouth, Massachusetts	102
1630	Boston, Massachusetts	1,000
1633	Newark, New Jersey	150
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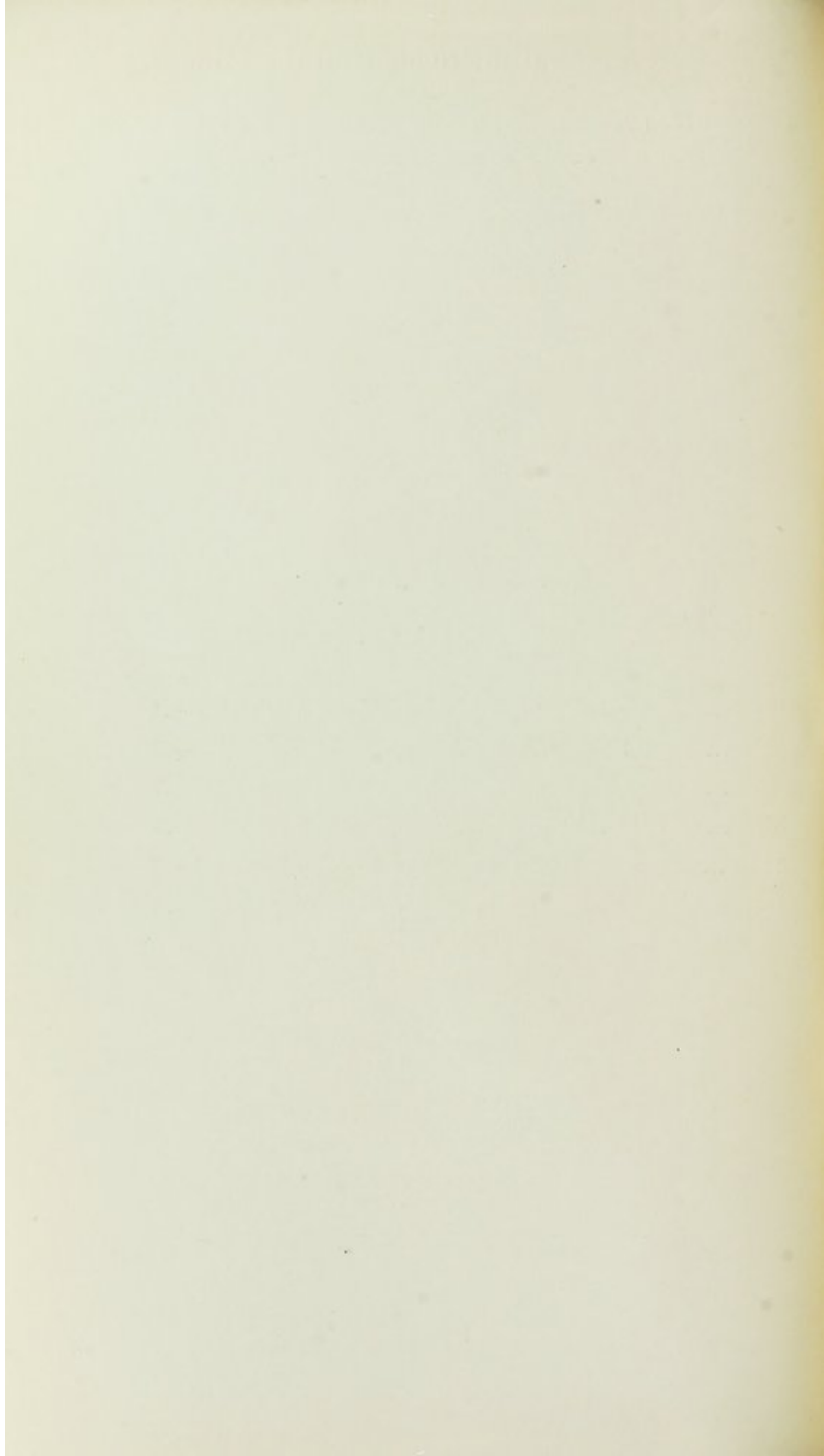
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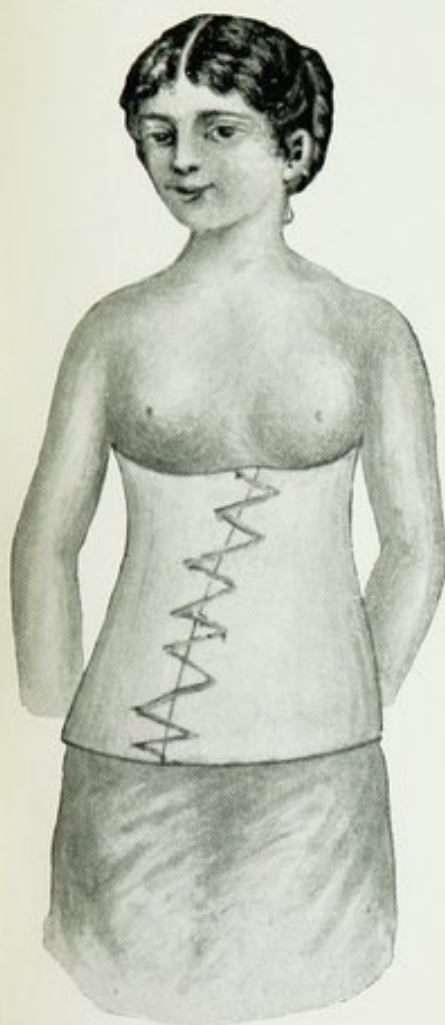
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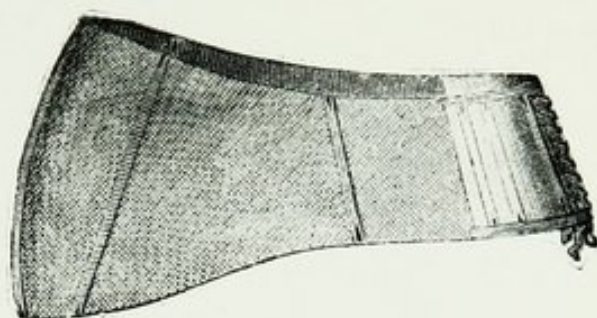
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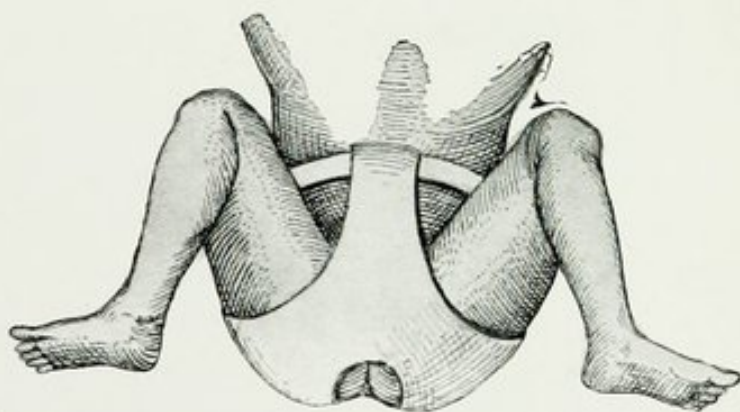
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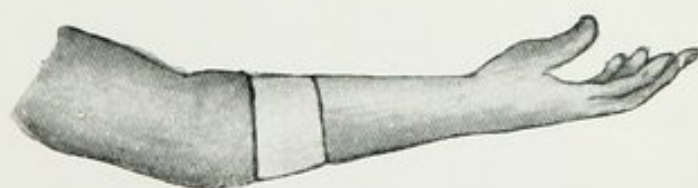
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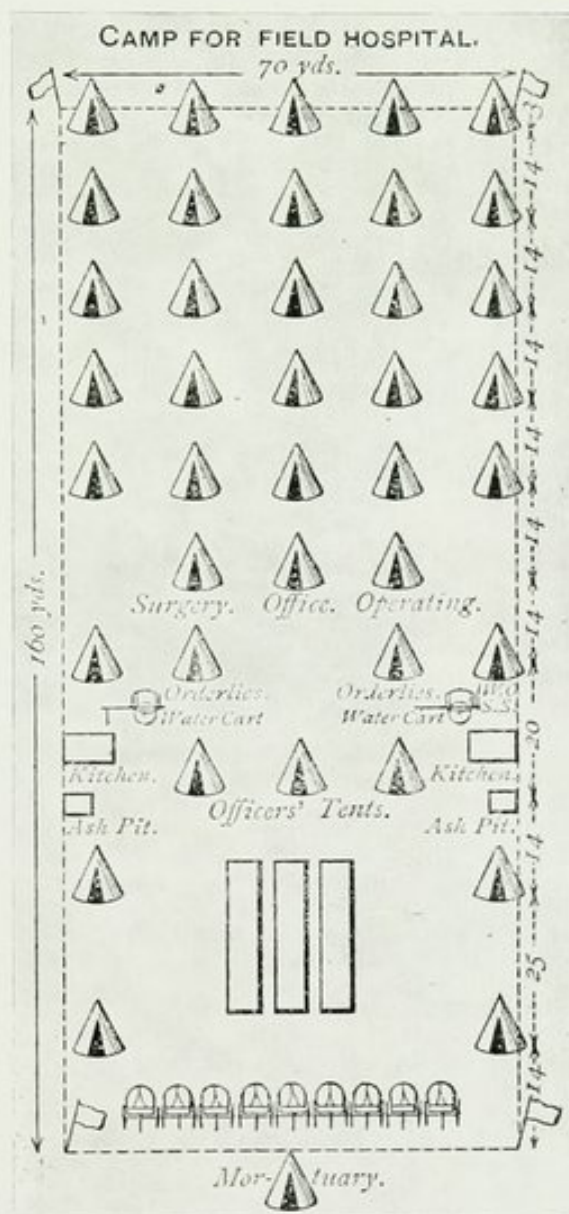
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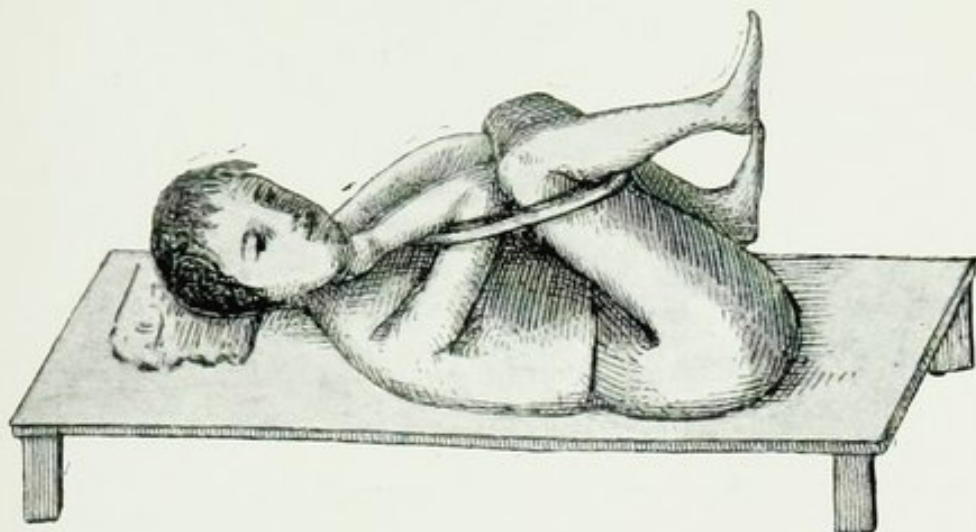
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YANTRA-ŚĀṬAKA OR BINDING APPARATUS.

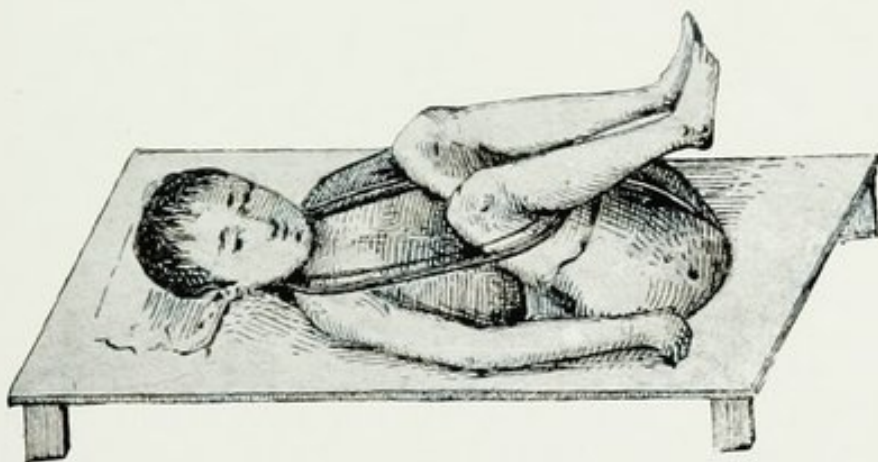
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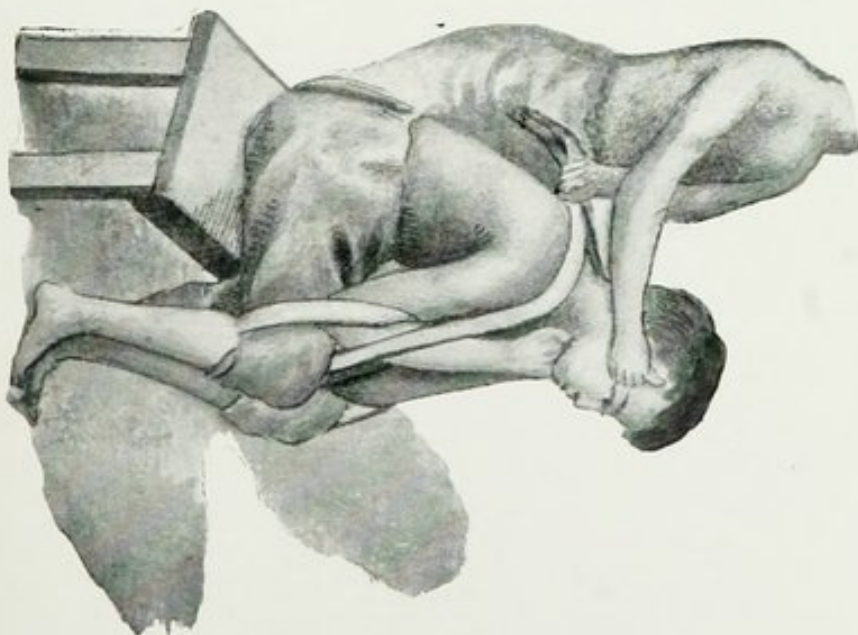
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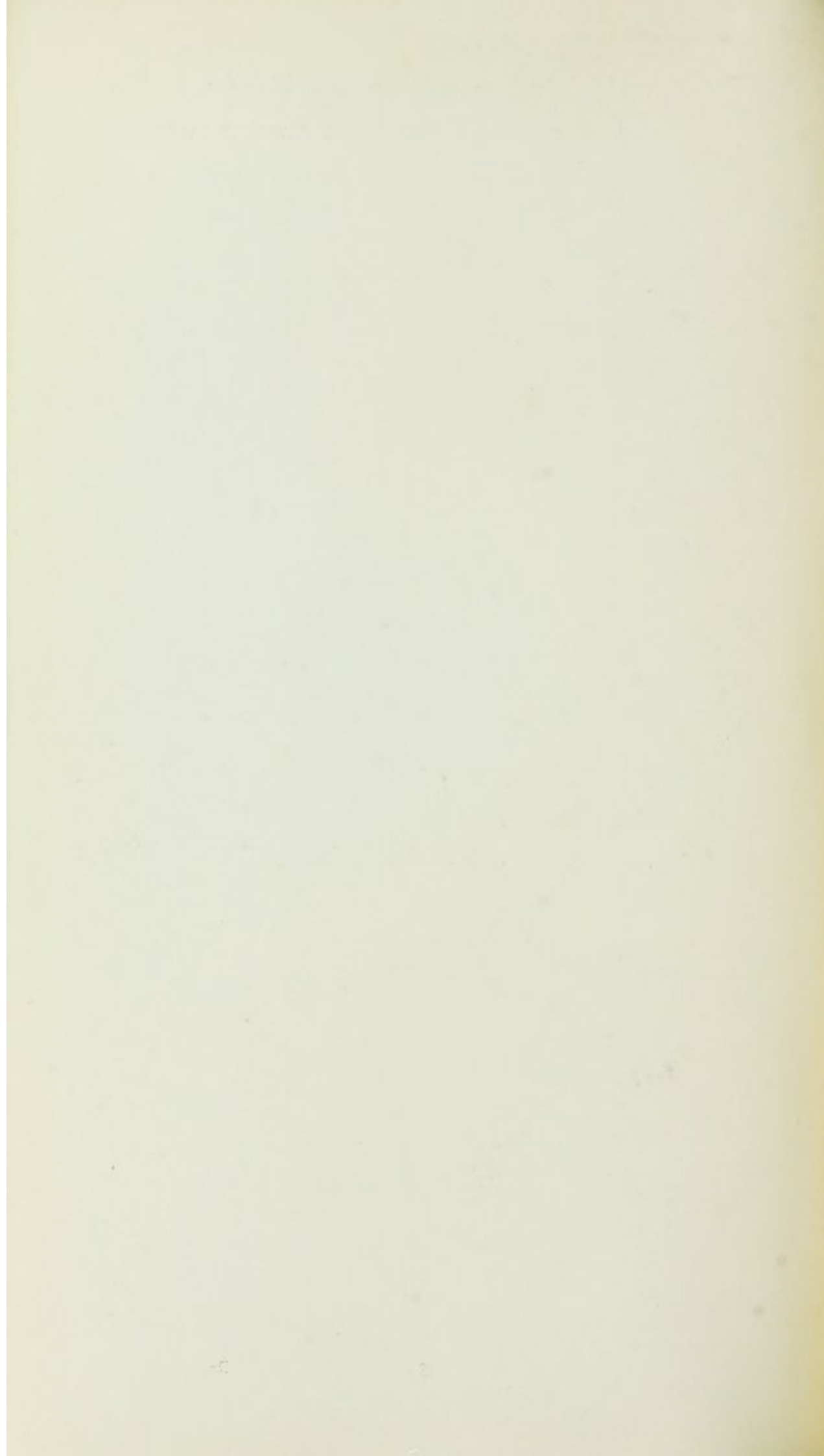
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A HISTORY OF THE STATE OF MICHIGAN

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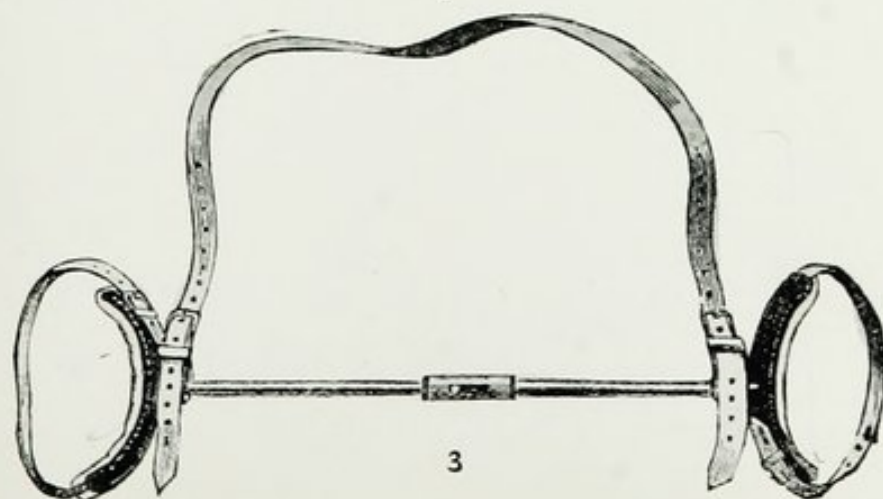
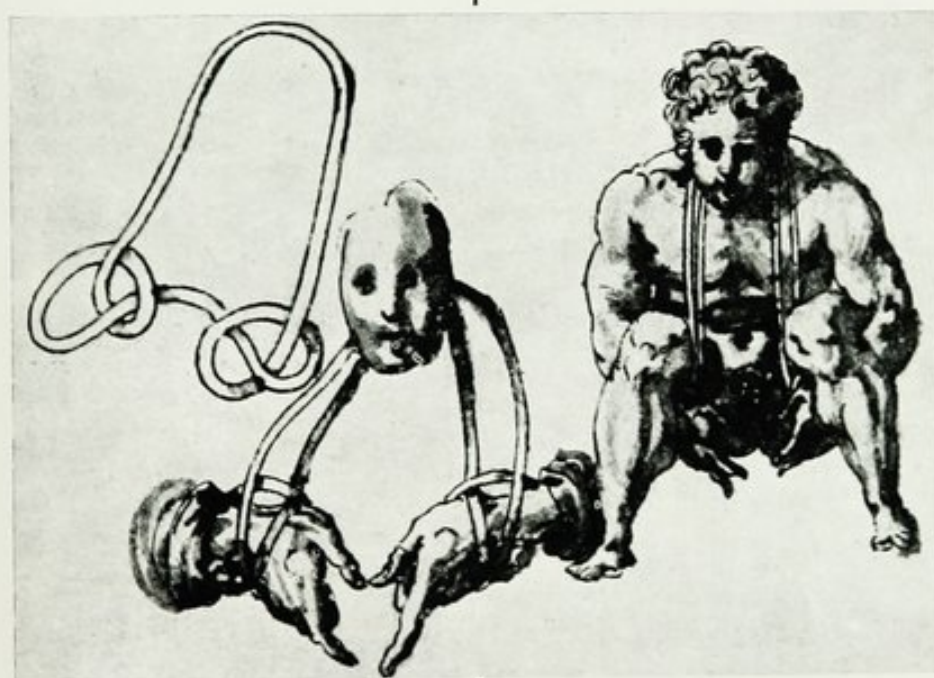
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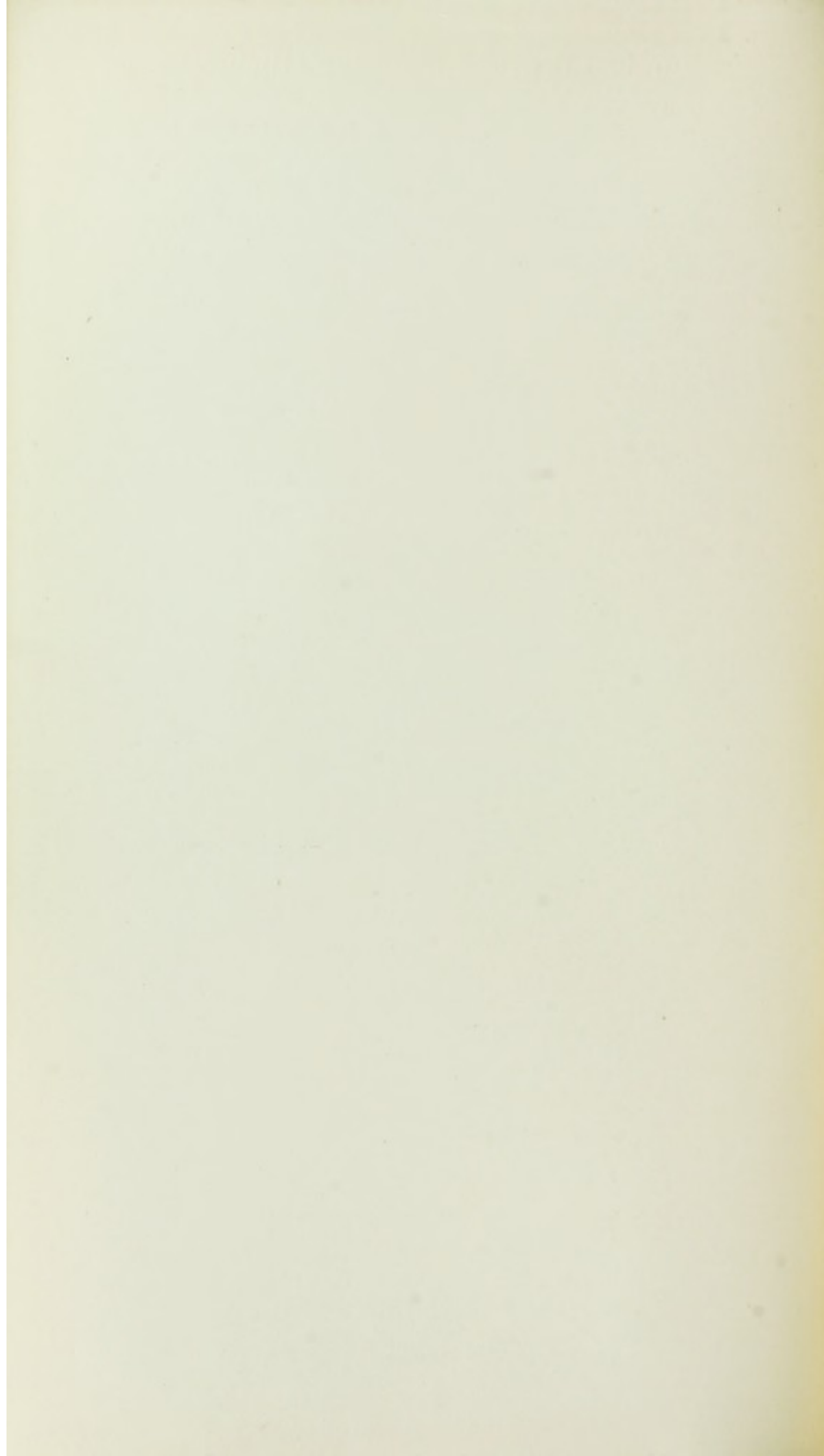
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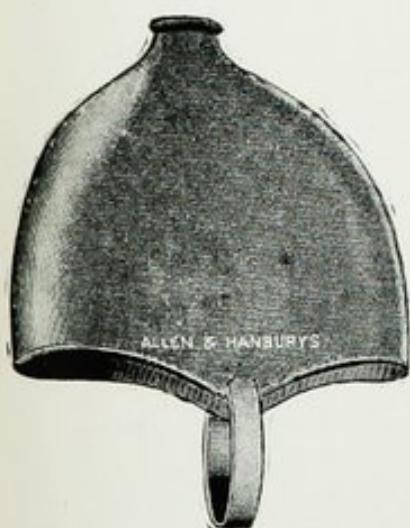
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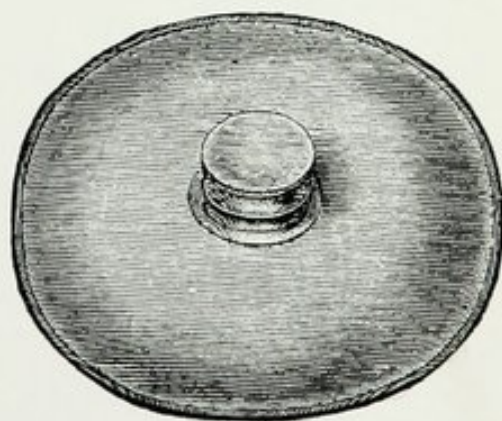
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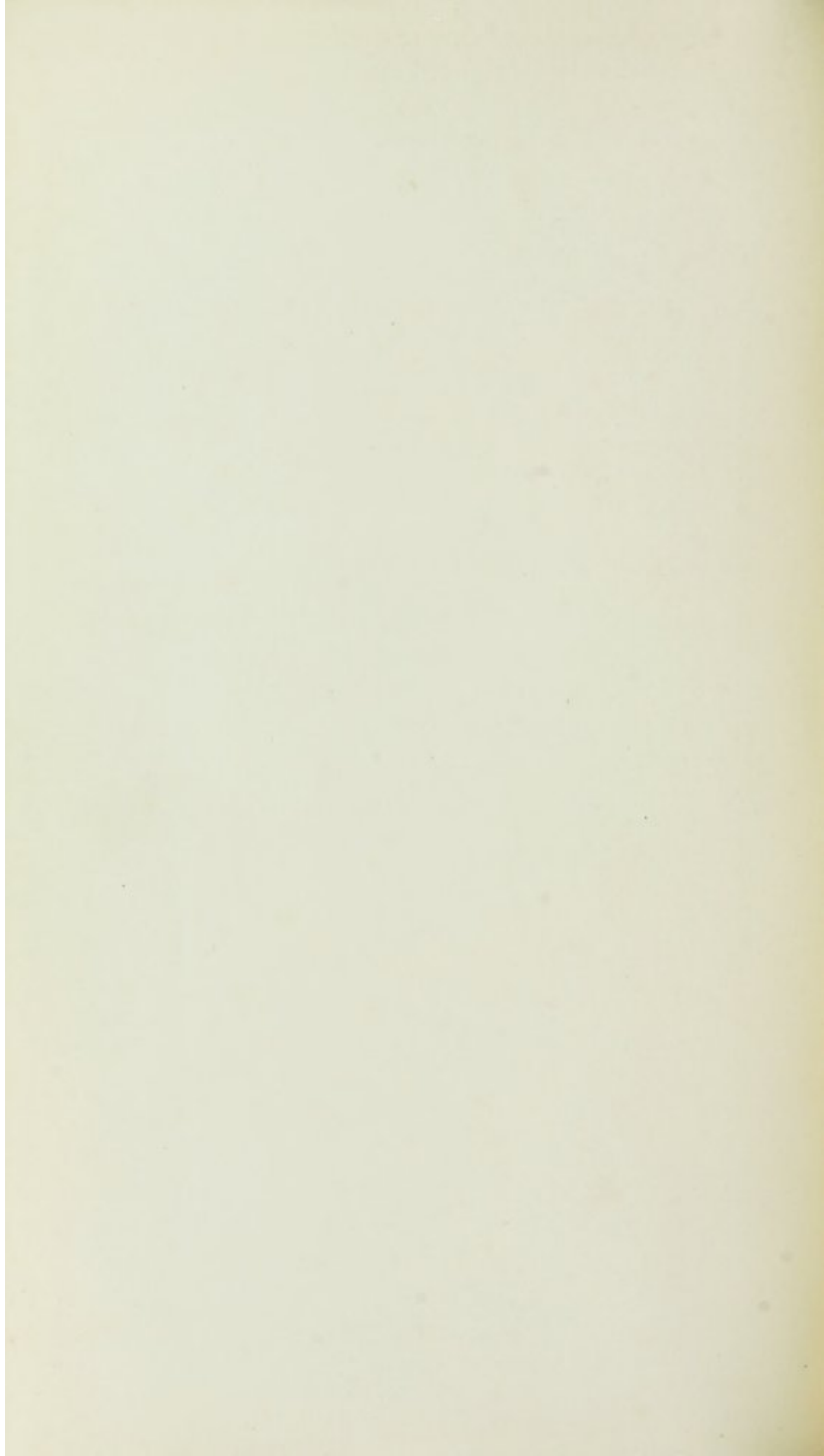
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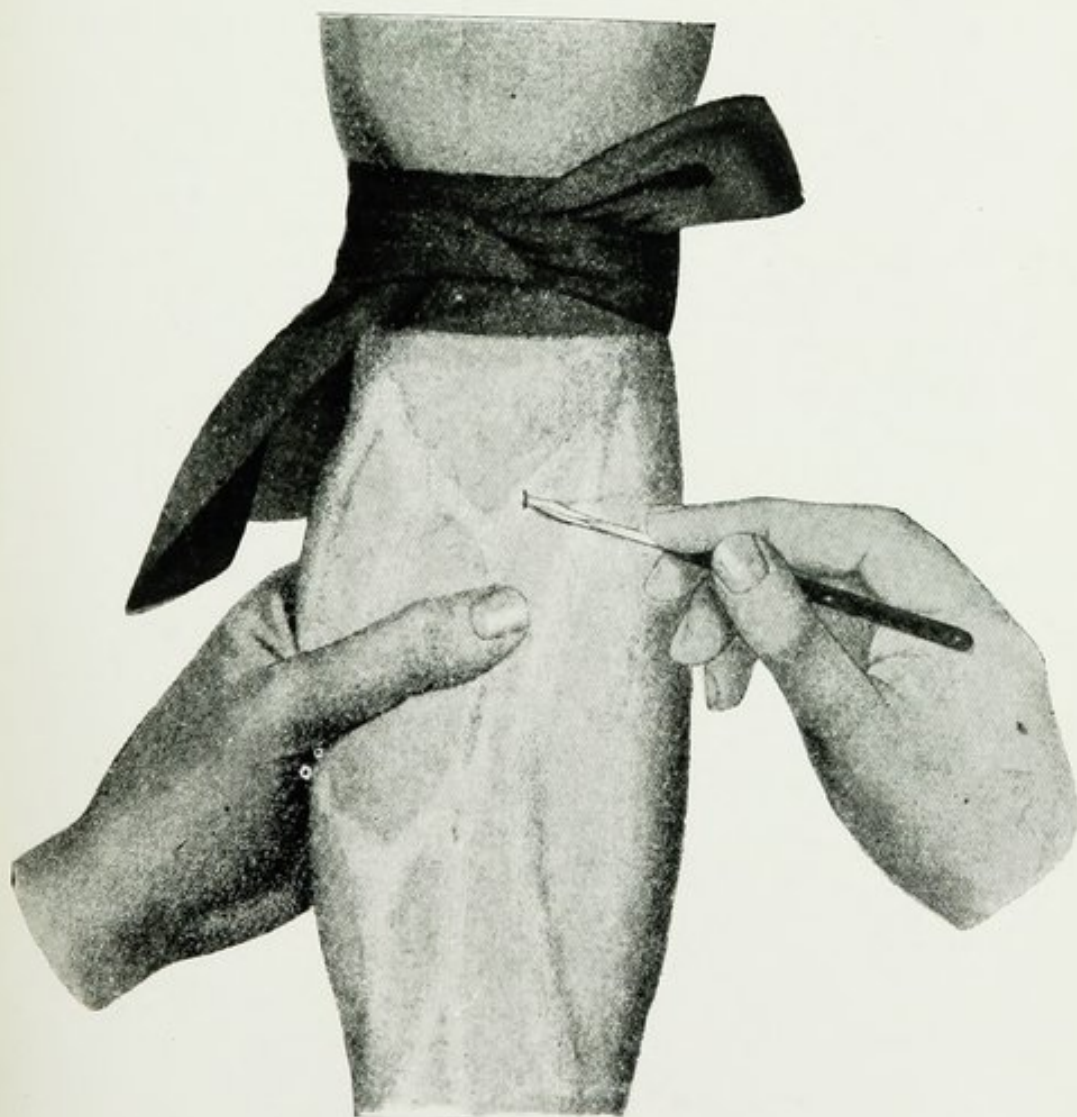
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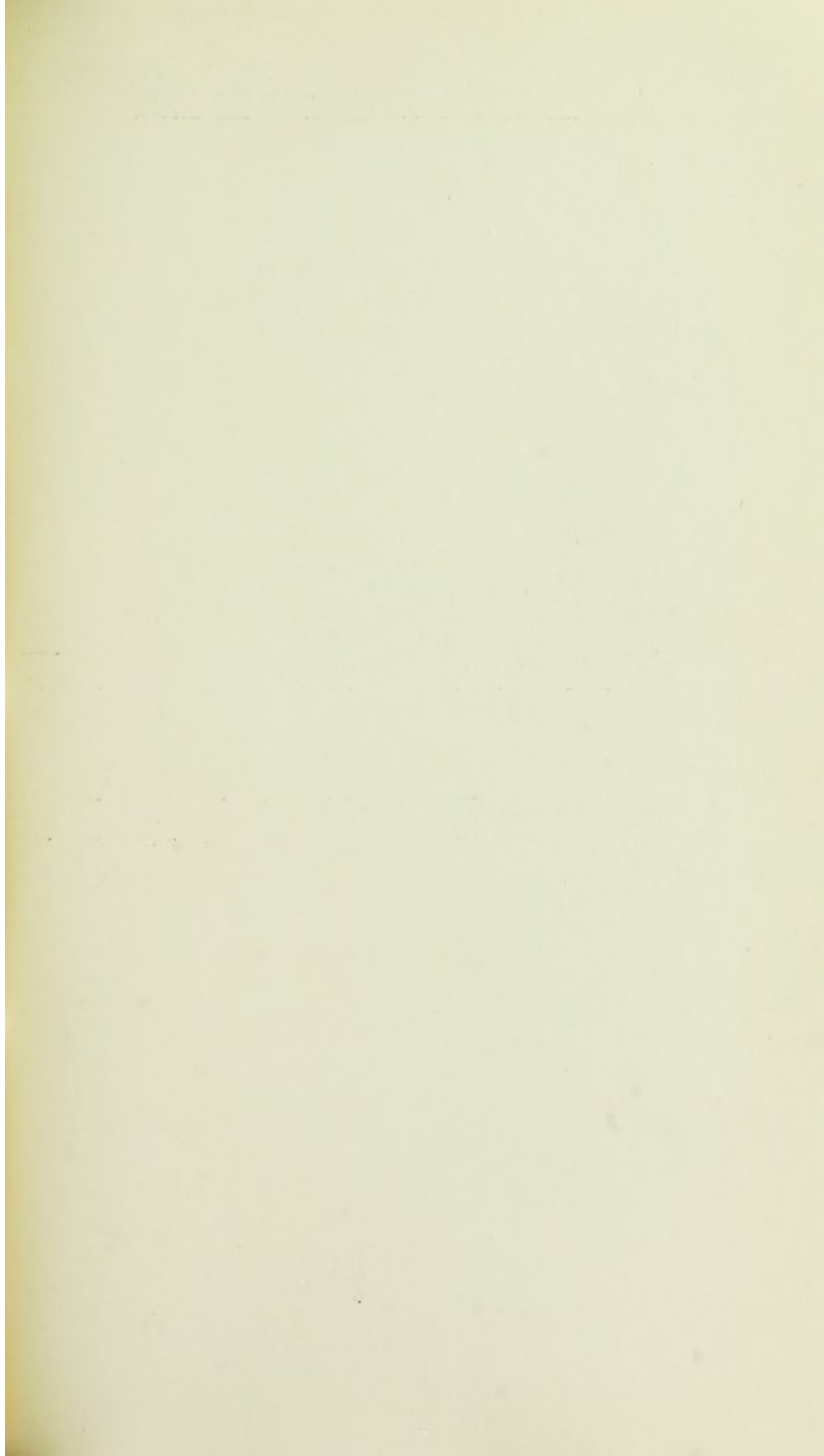


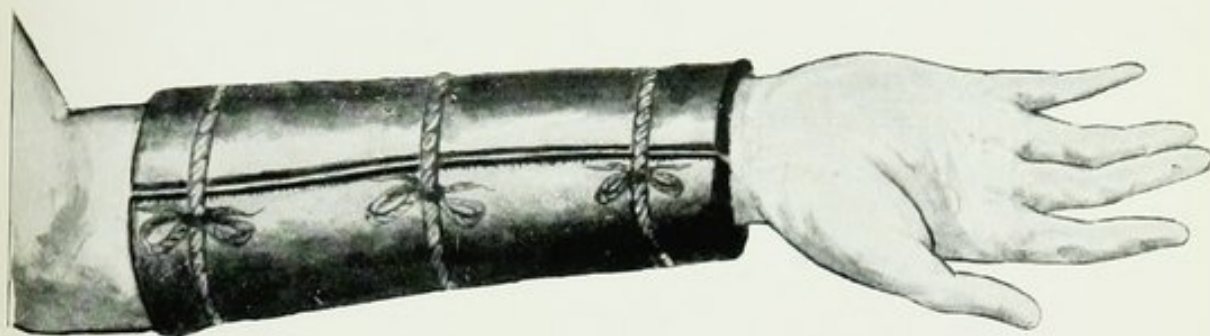
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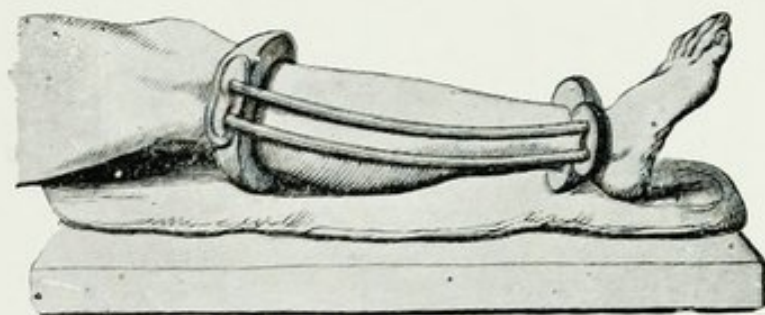
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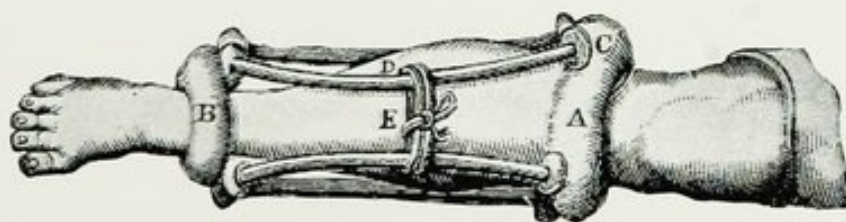
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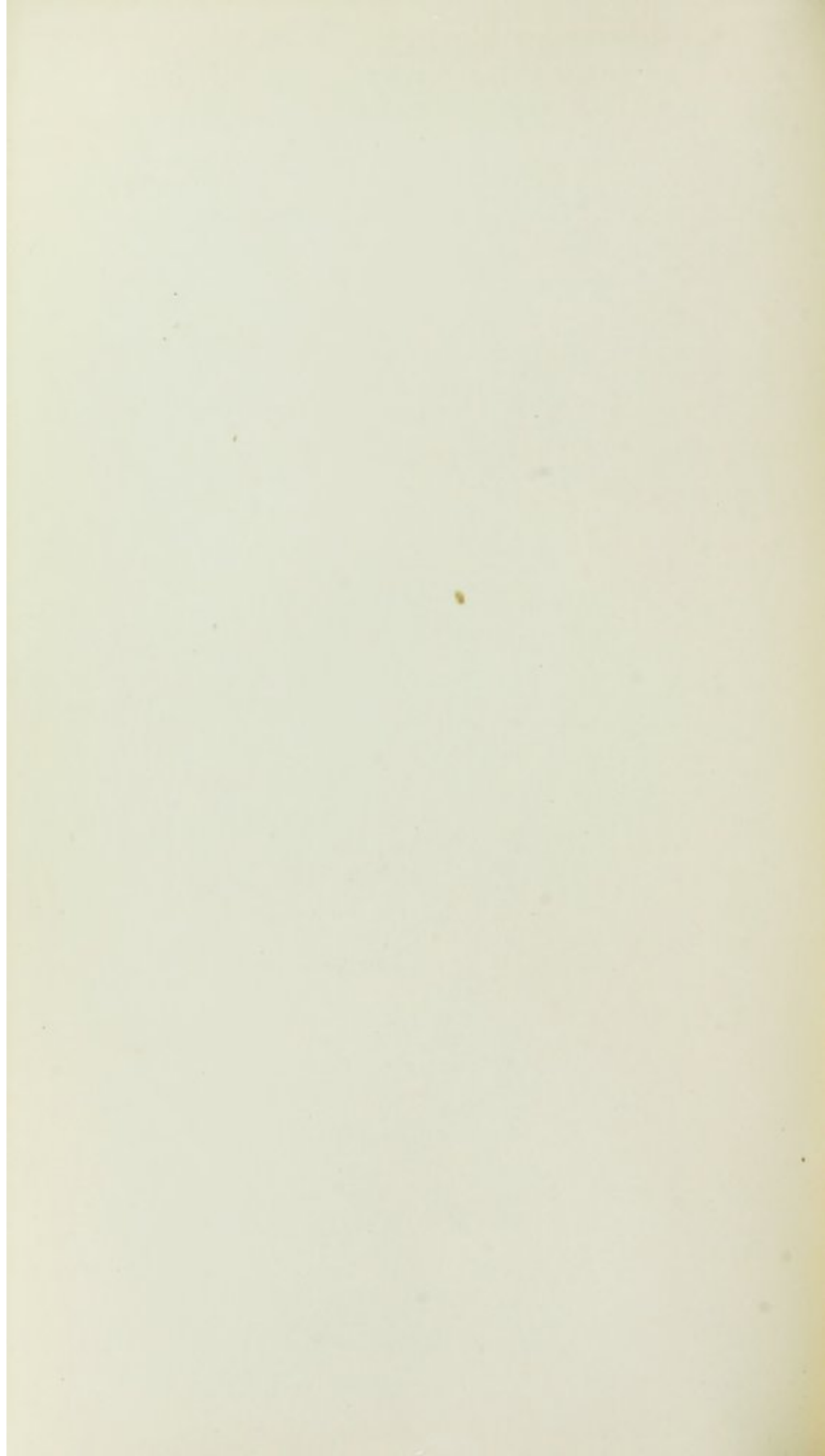
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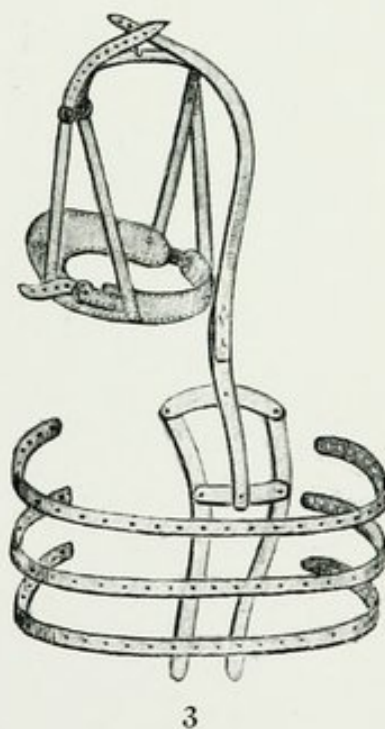
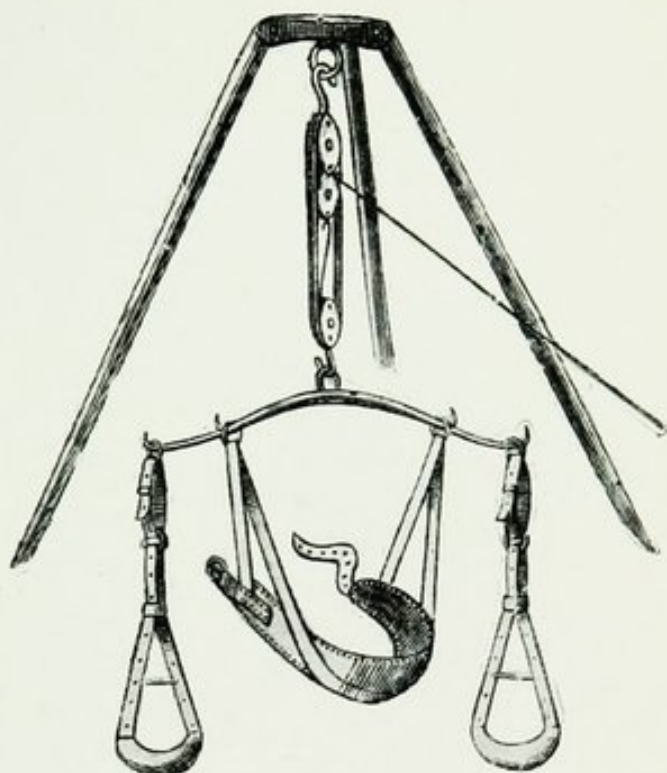
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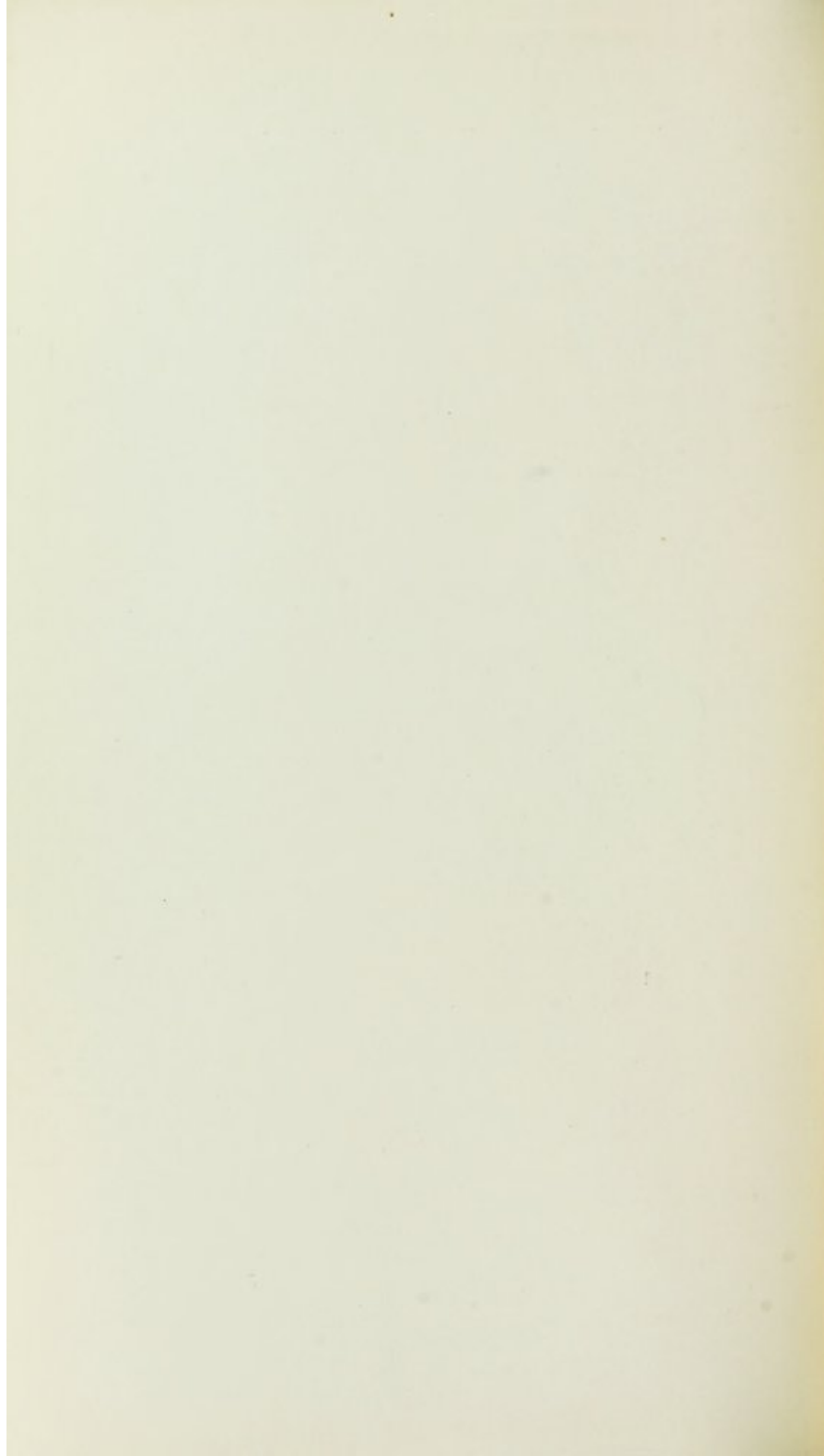


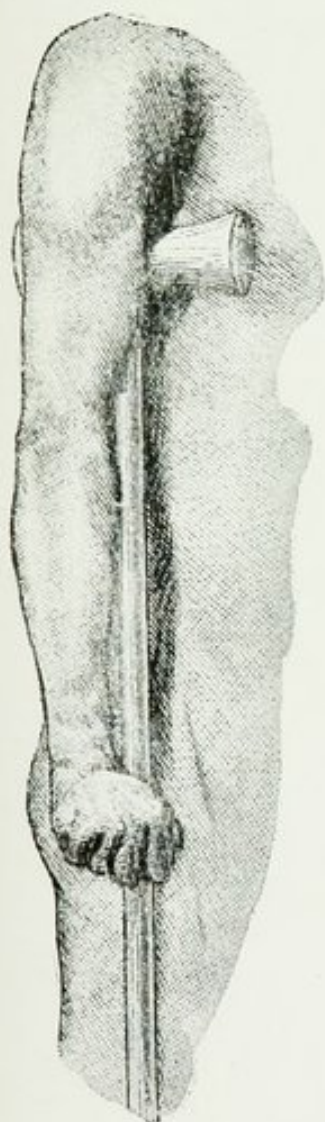
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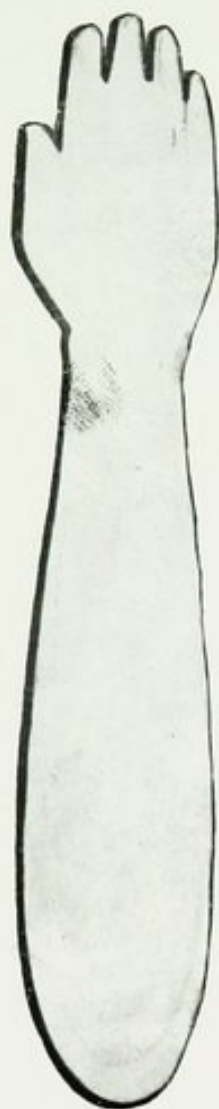
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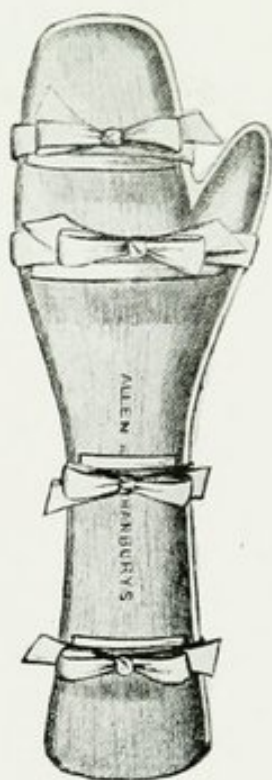
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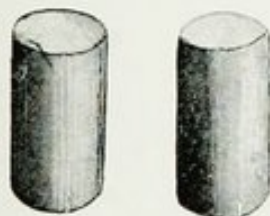
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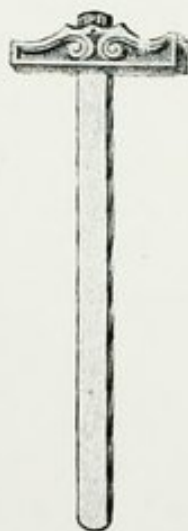
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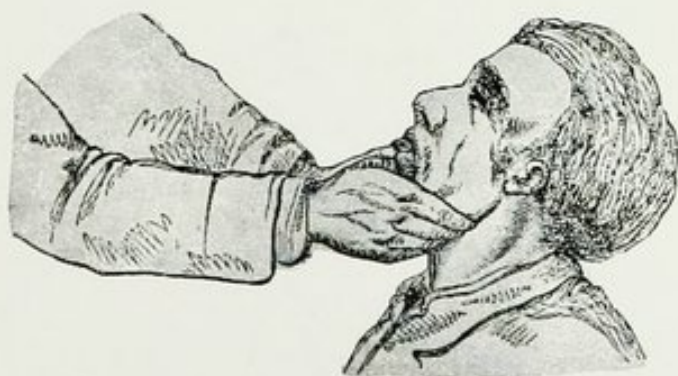
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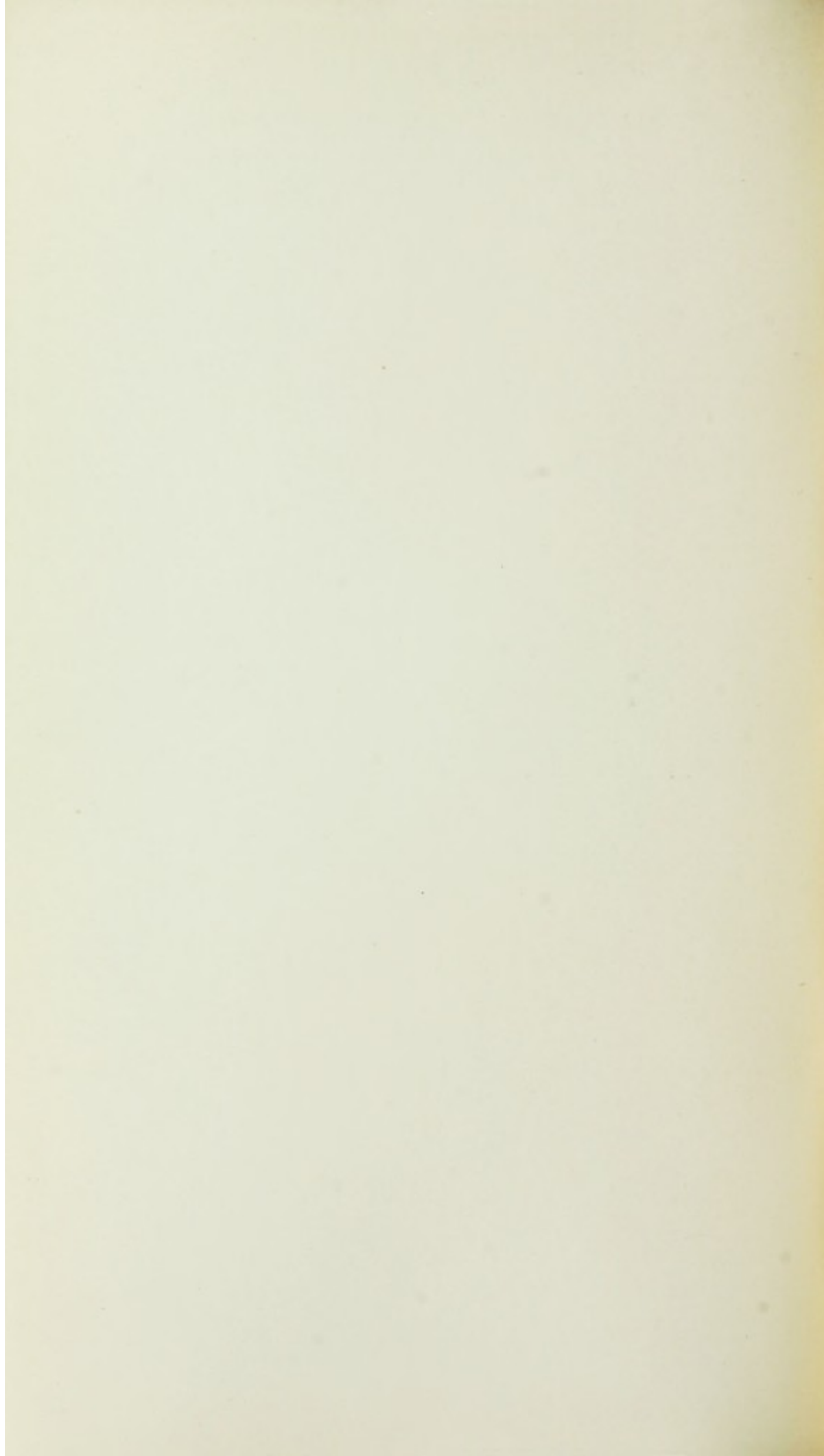
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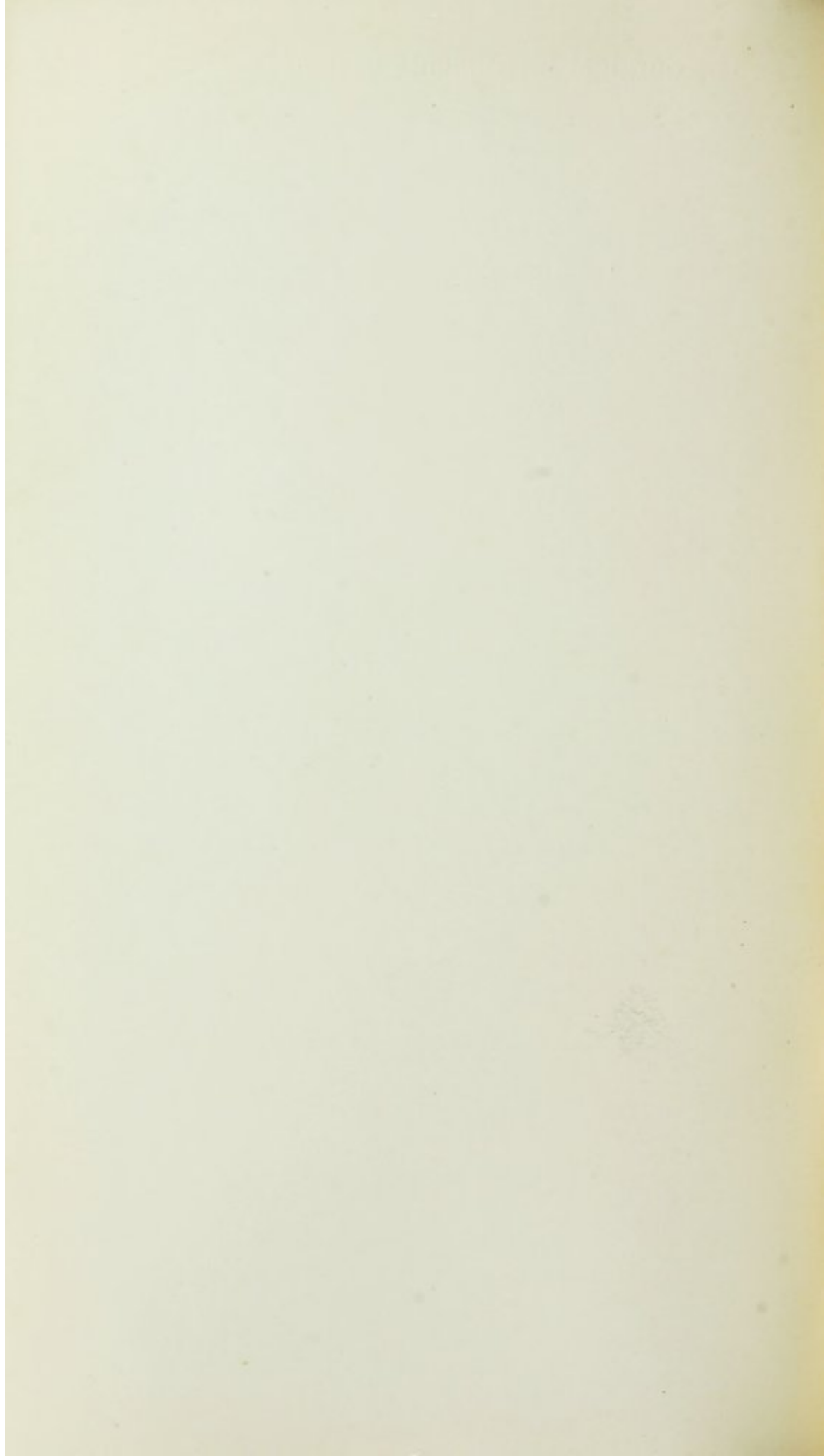
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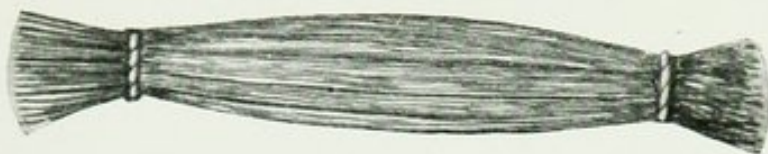
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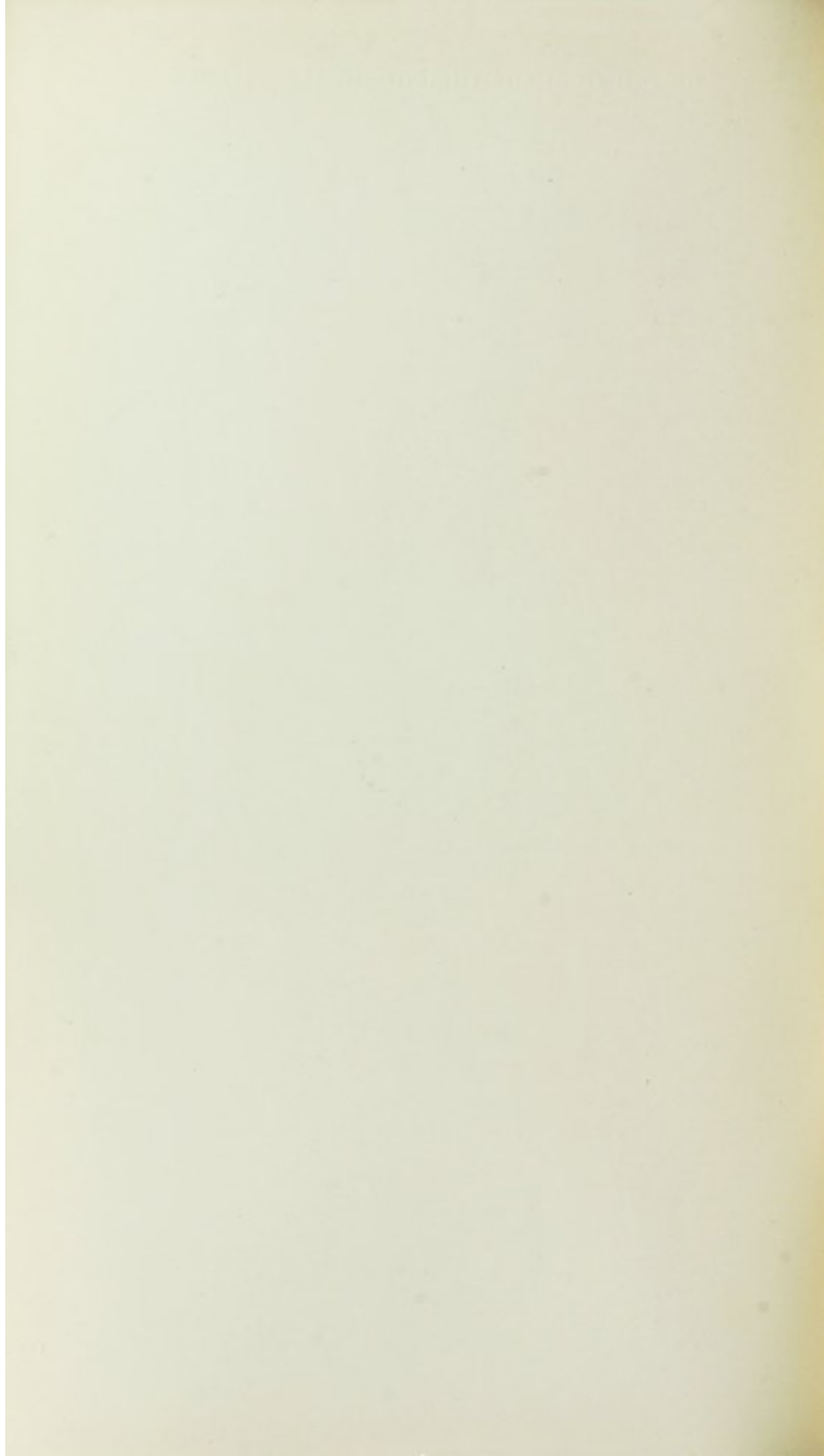
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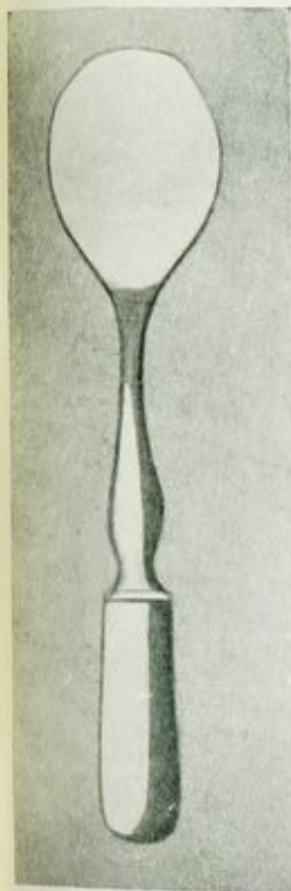
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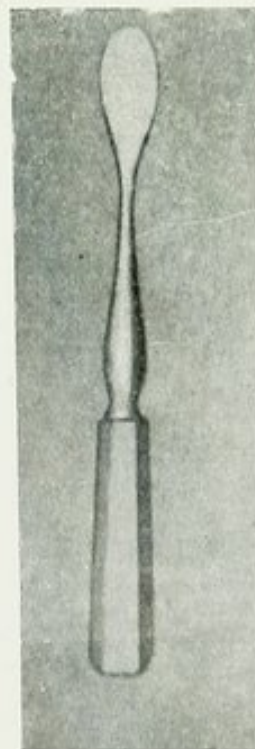
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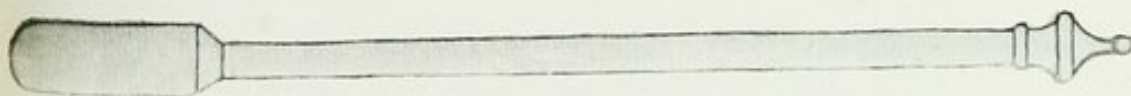
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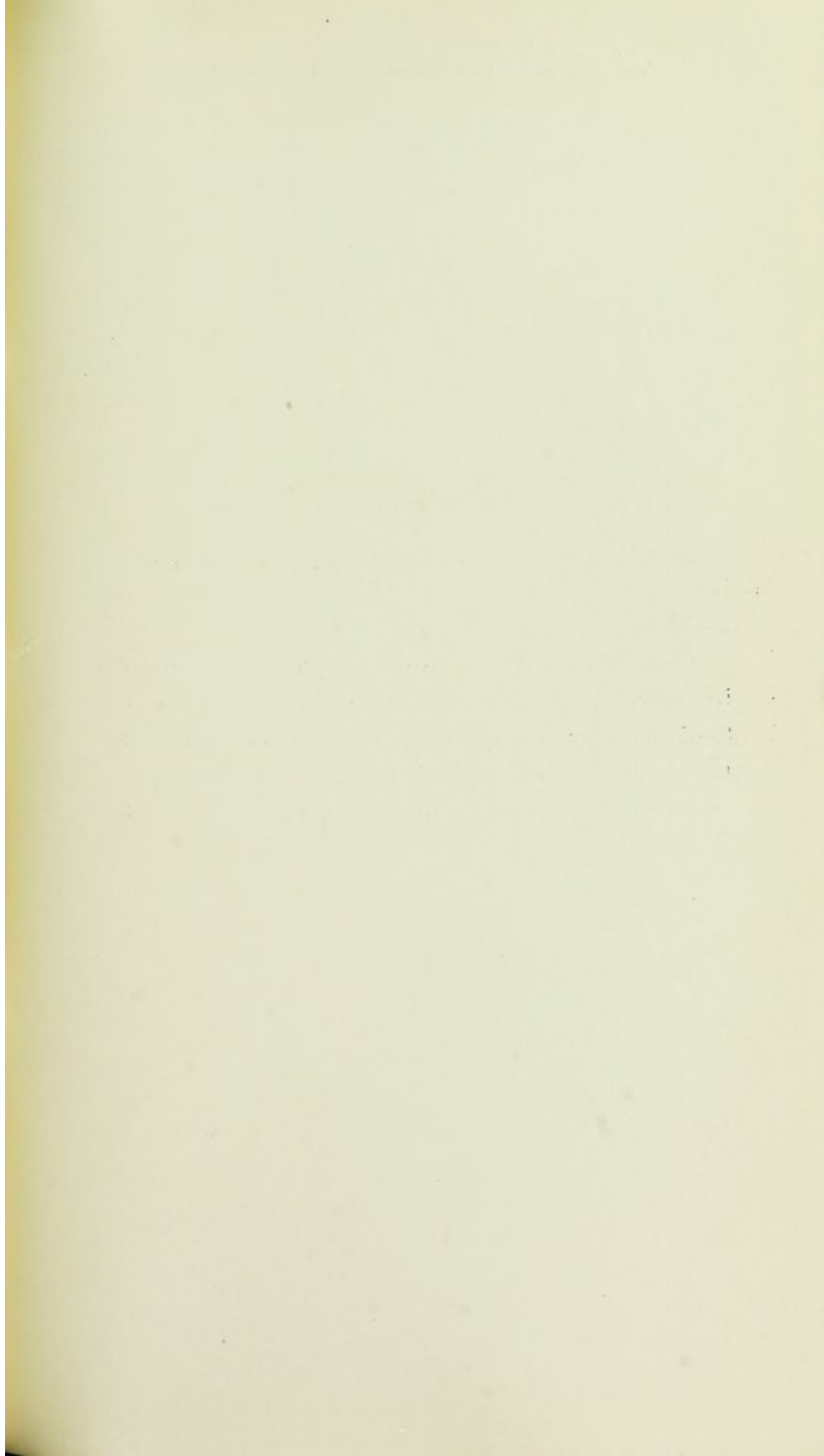


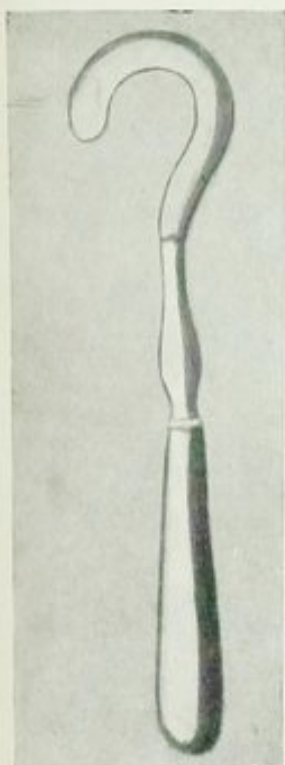
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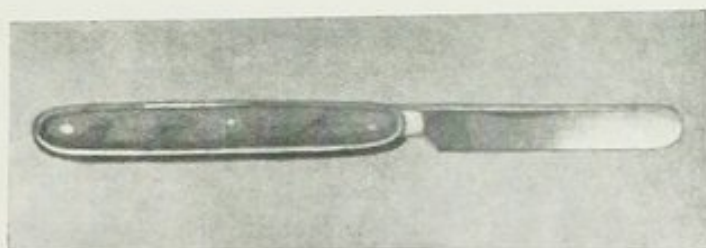
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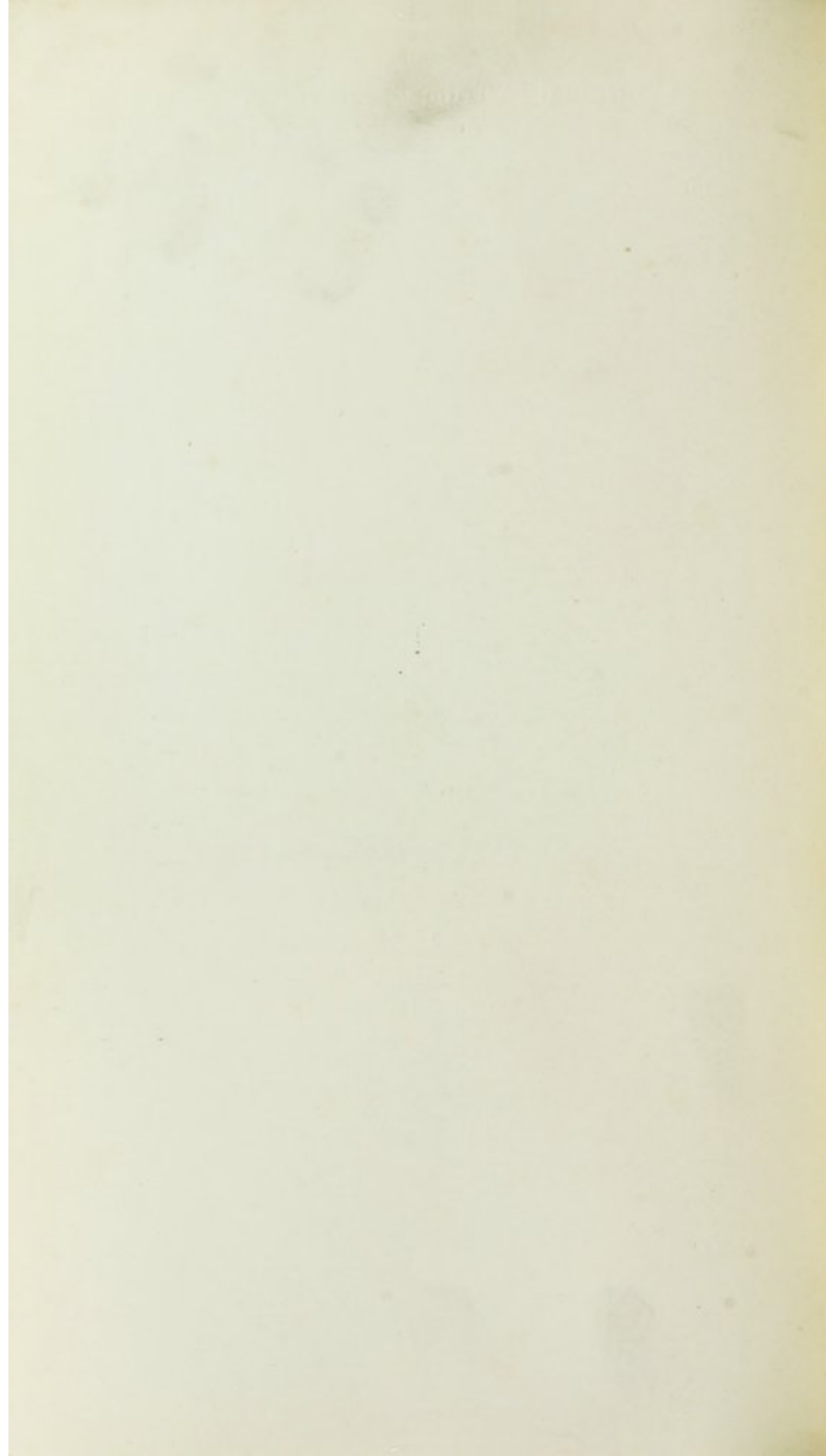


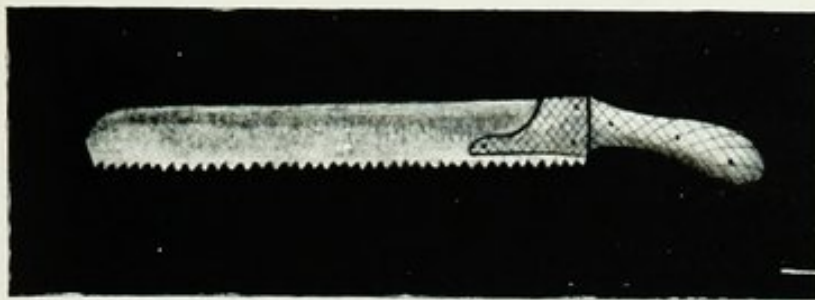
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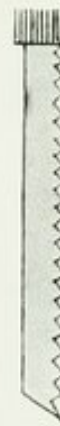
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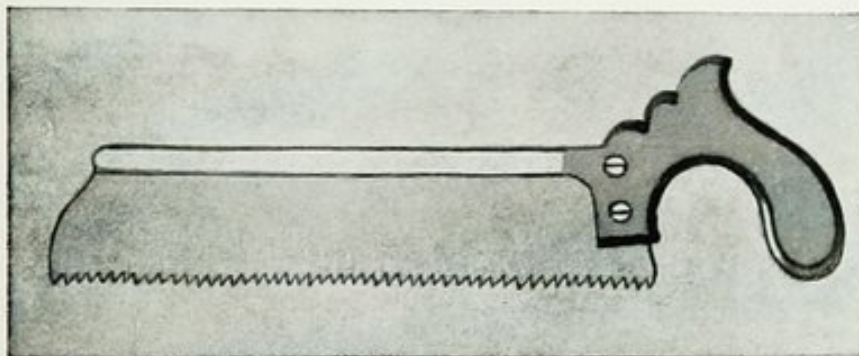
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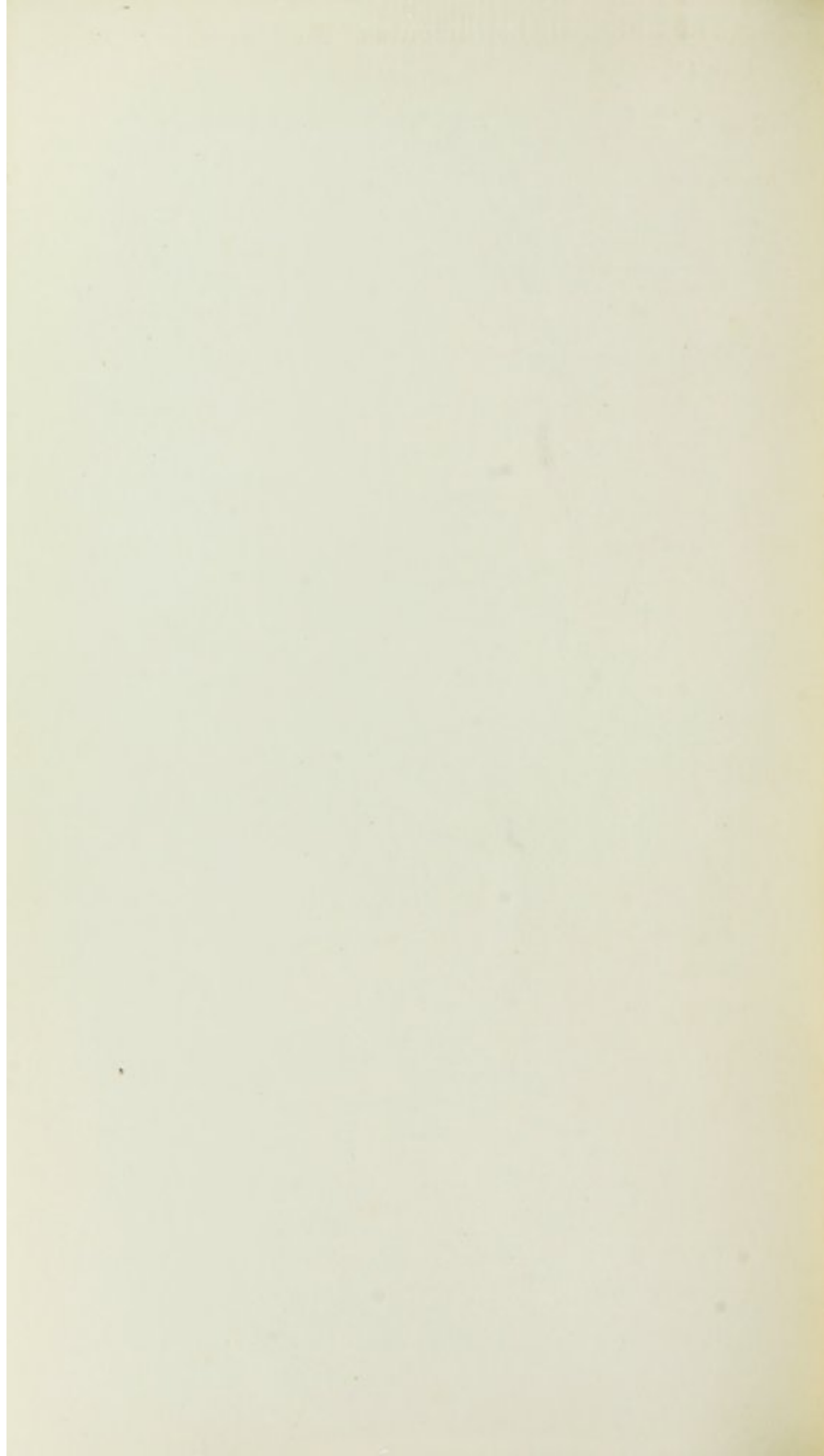


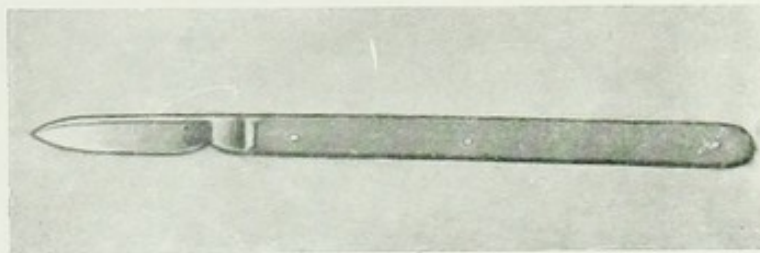
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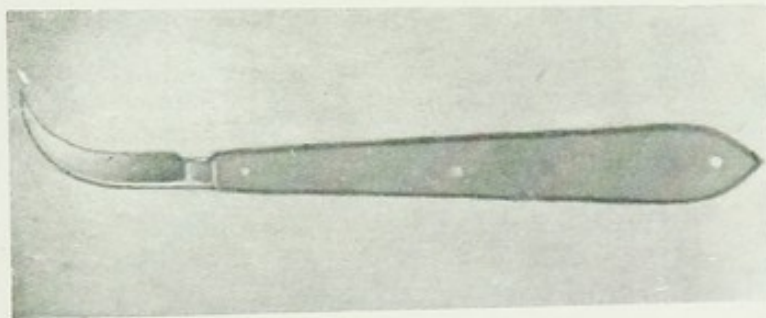
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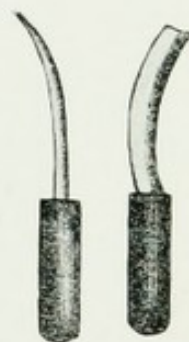
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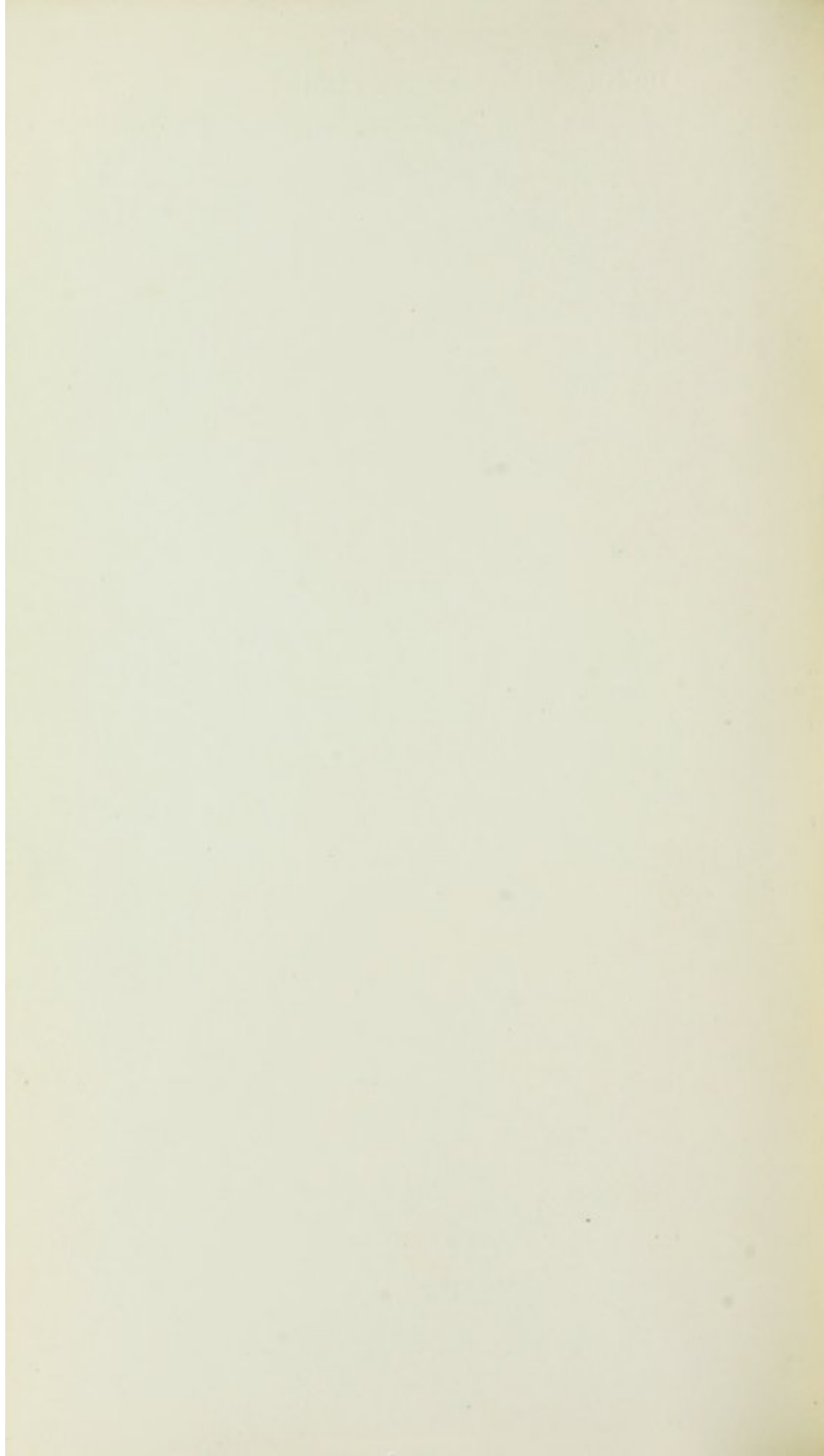
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CHAPTER I

THE FIRST SETTLEMENTS

Year	Settlement	Founder	Notes
1607	Jamestown	John Rolfe	First permanent English settlement in North America
1607	Plymouth	William Brewster	First permanent English settlement in New England
1607	Roanoke	John Rolfe	First permanent English settlement in the South
1607	St. Augustine	Pedro Menéndez	First permanent Spanish settlement in North America
1607	San Juan de los Rios	Don Juan de Oñate	First permanent Spanish settlement in the Southwest
1607	San Francisco	Don Juan de Oñate	First permanent Spanish settlement in California
1607	San Diego	Don Juan de Oñate	First permanent Spanish settlement in California
1607	San Antonio	Don Juan de Oñate	First permanent Spanish settlement in Texas
1607	San Carlos	Don Juan de Oñate	First permanent Spanish settlement in Arizona
1607	San Juan	Don Juan de Oñate	First permanent Spanish settlement in New Mexico

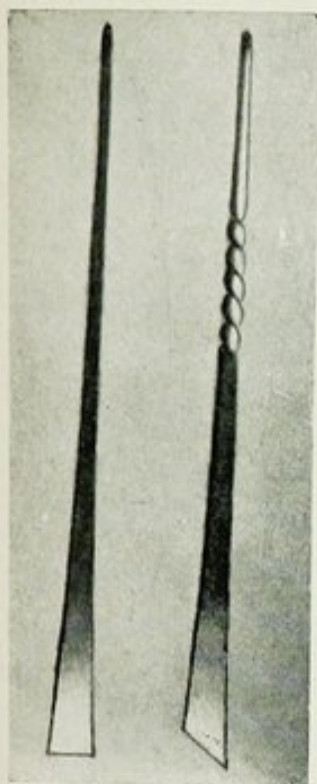
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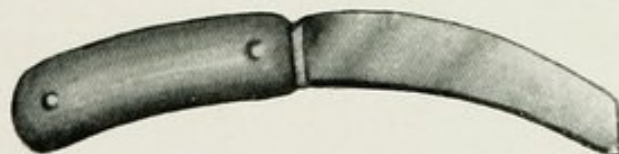
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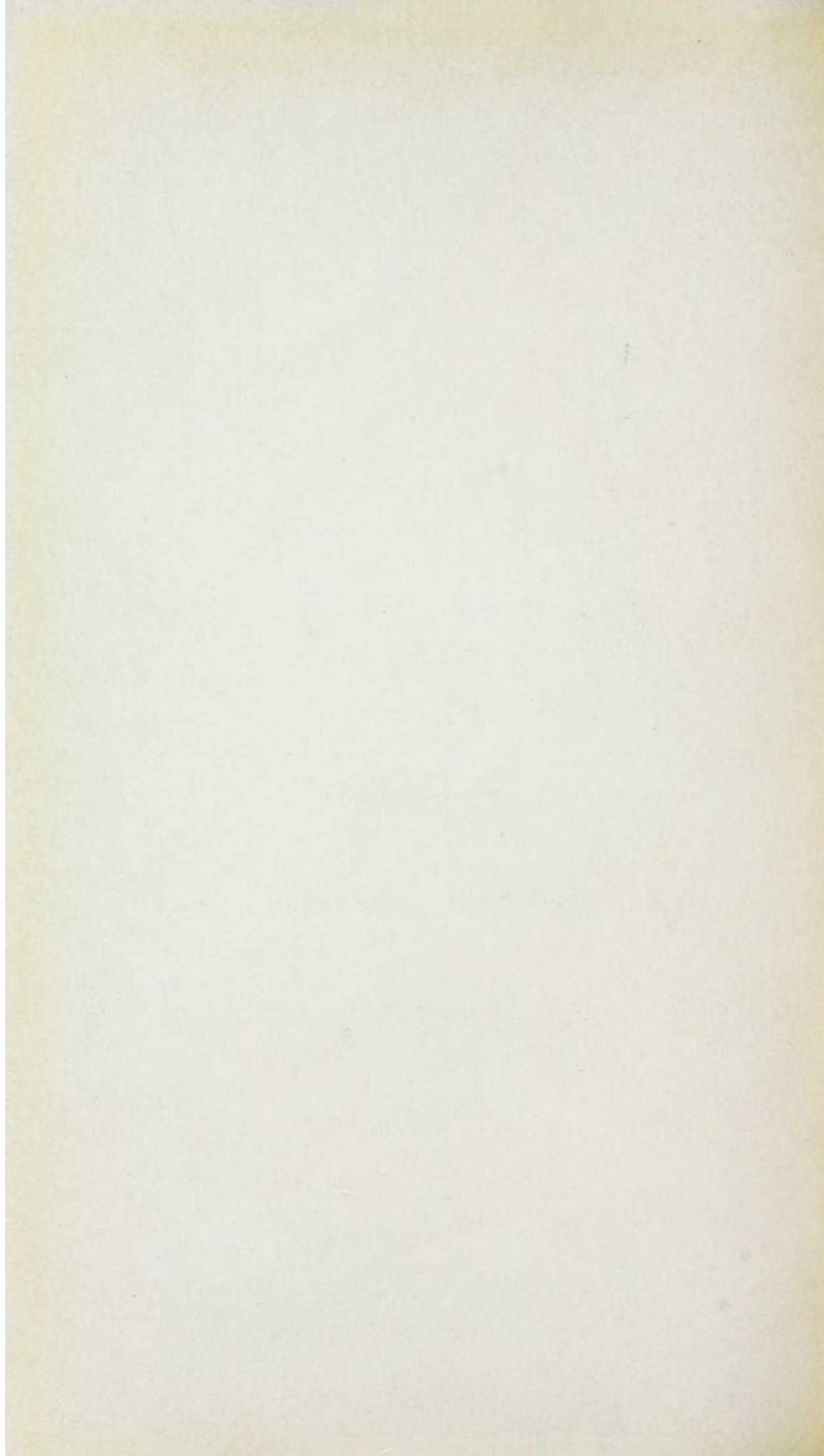
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1914	1913	1912	1911	1910
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1914	1913	1912	1911	1910
1914	1913	1912	1911	1910
1914	1913	1912	1911	1910
1914	1913	1912	1911	1910
1914	1913	1912	1911	1910
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1914	1913	1912	1911	1910
1914	1913	1912	1911	1910

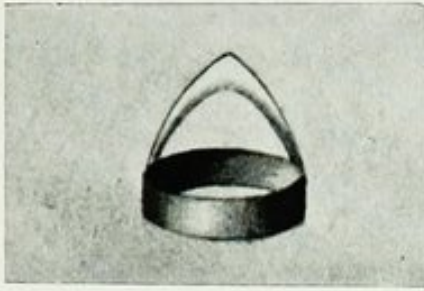
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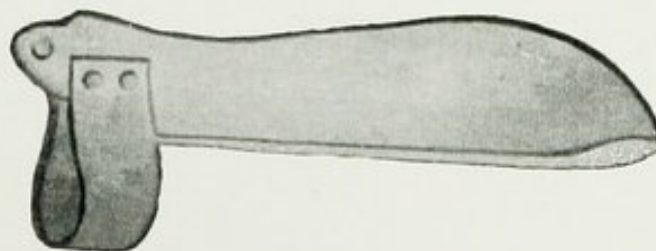
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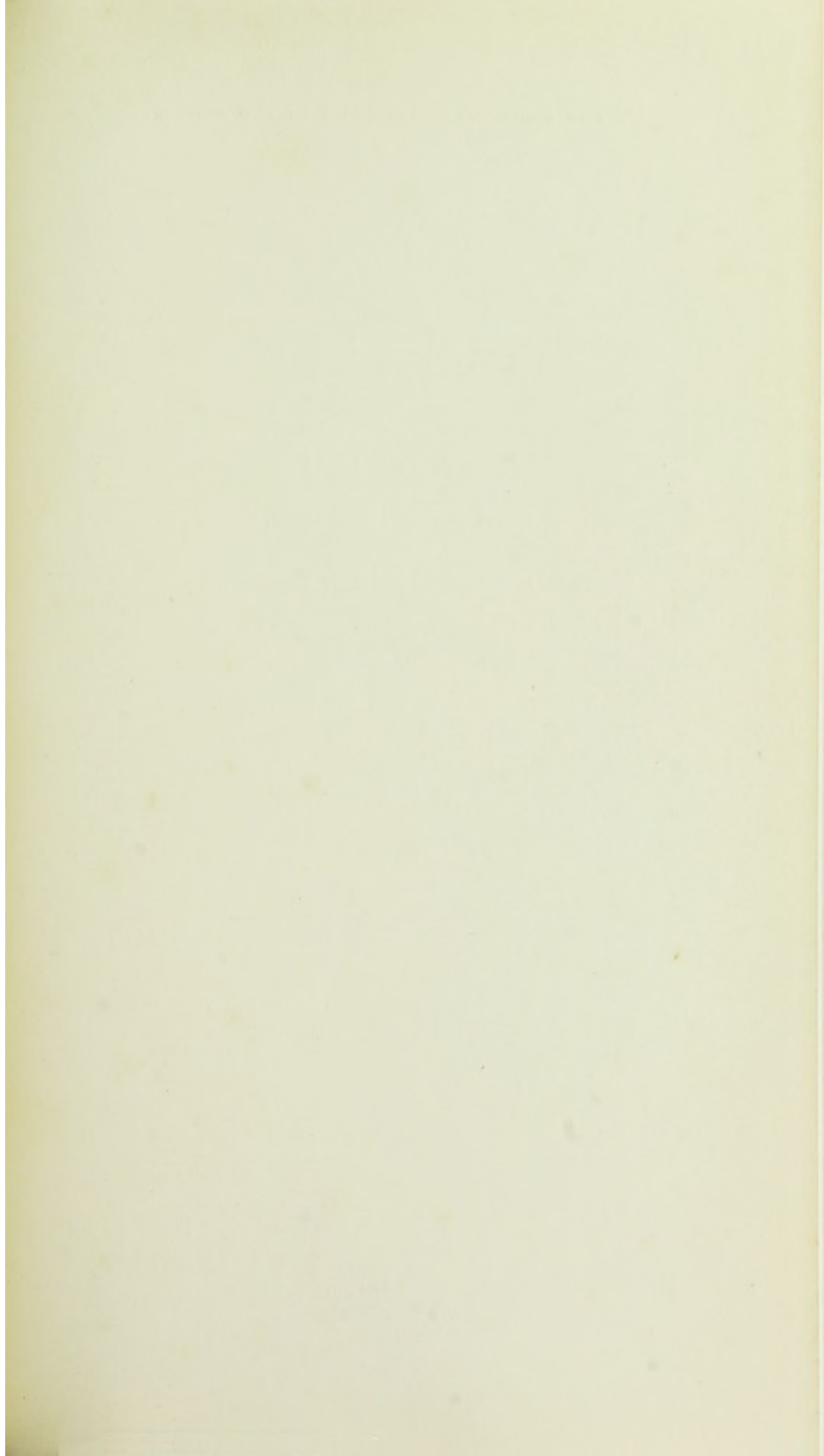


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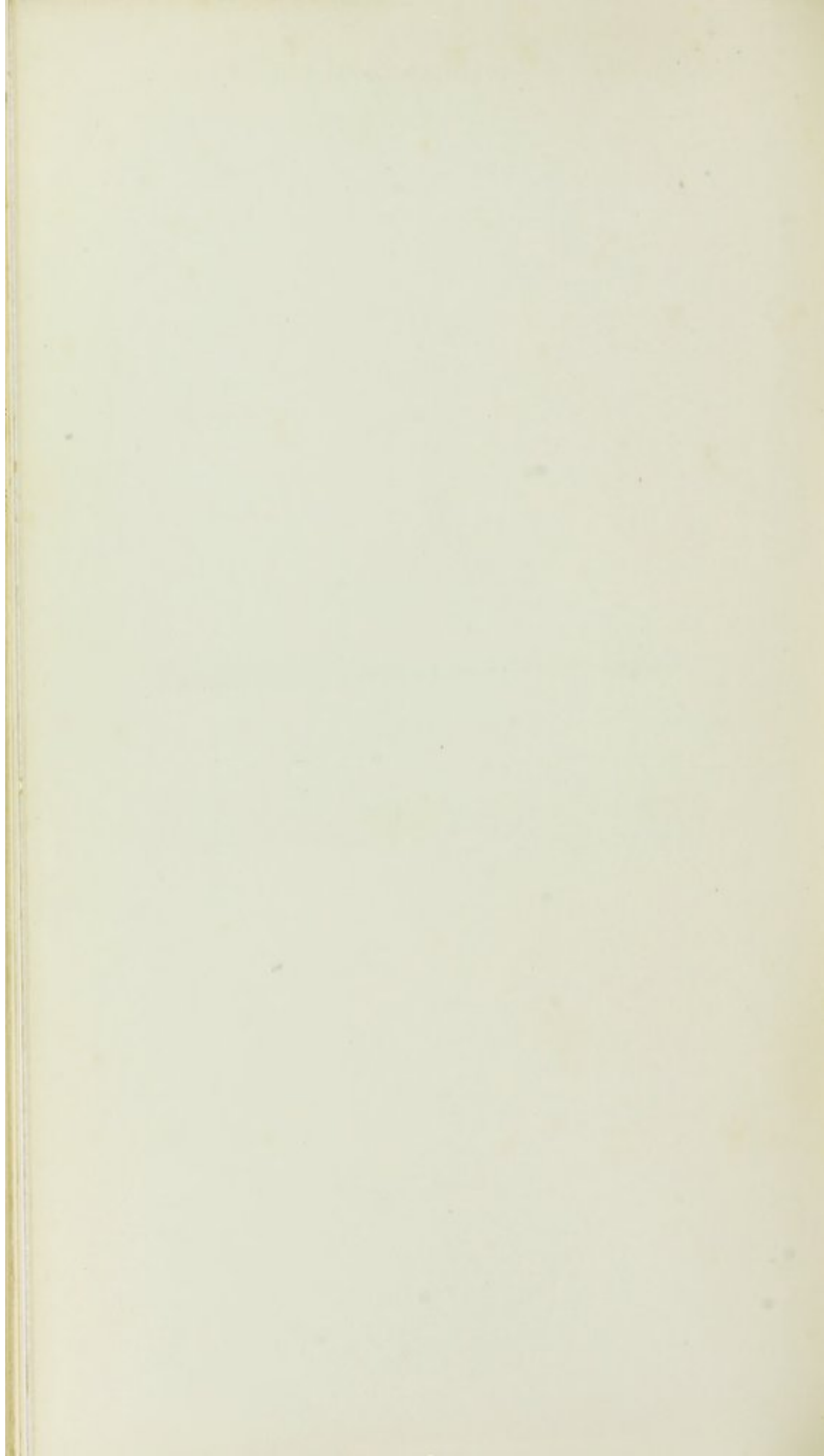
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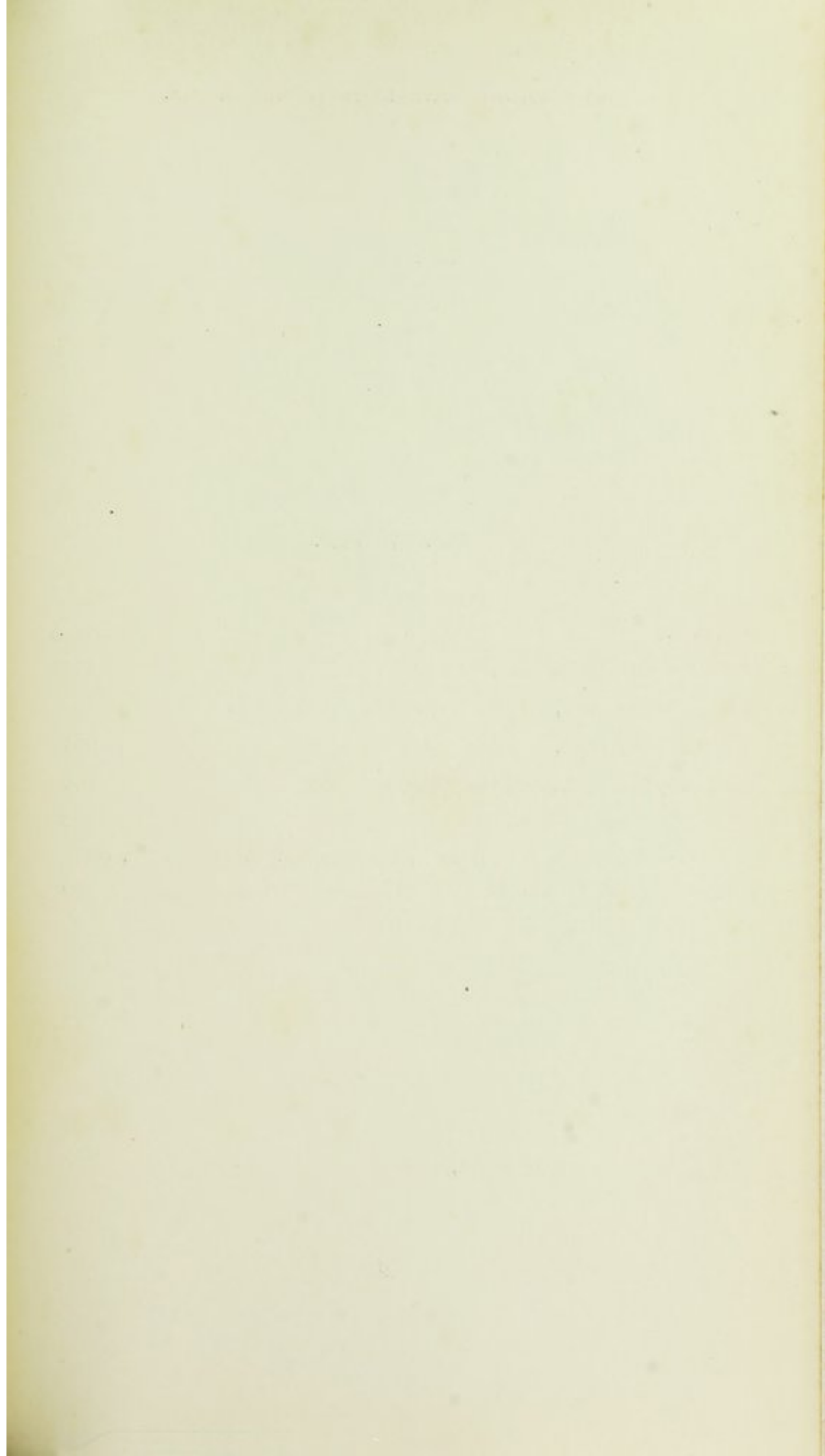


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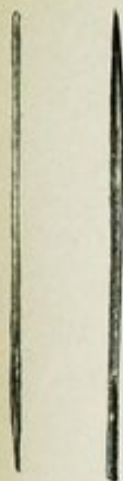
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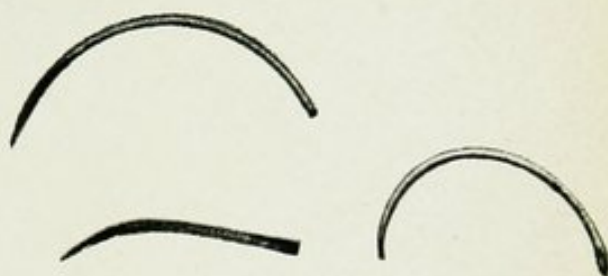


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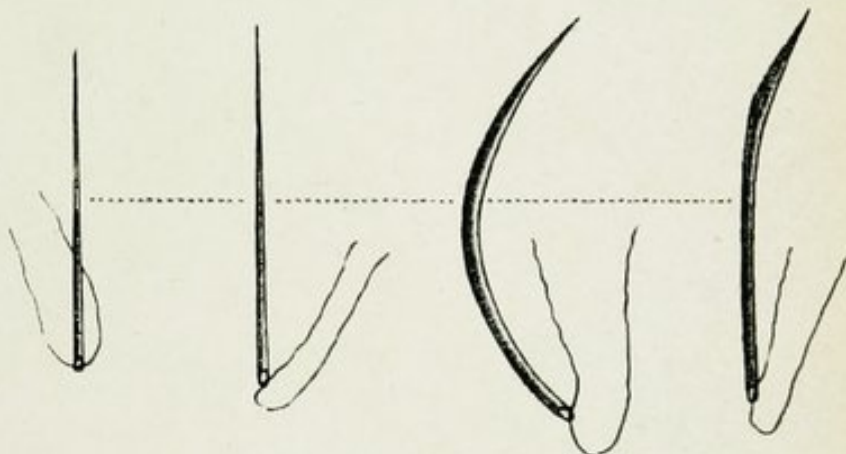
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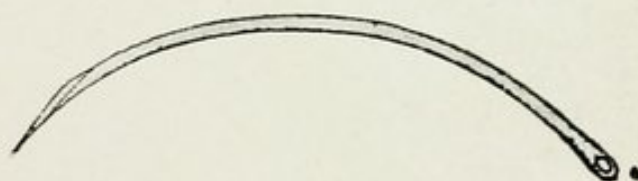
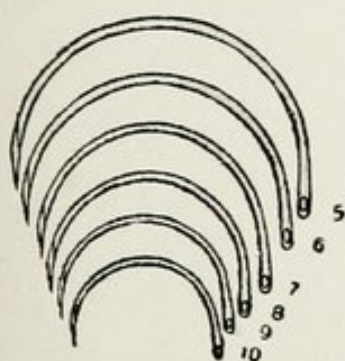
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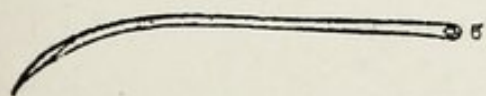
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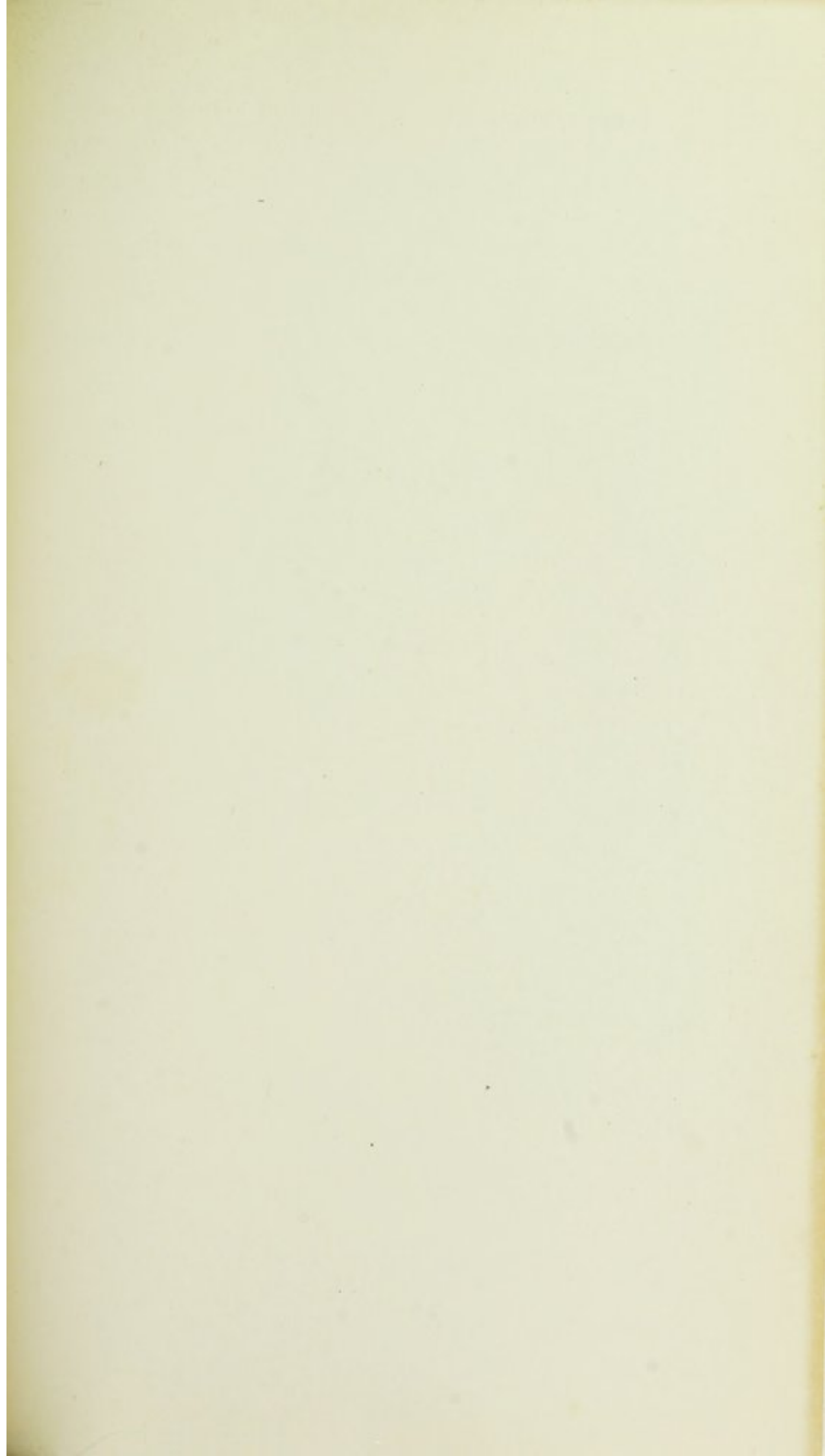


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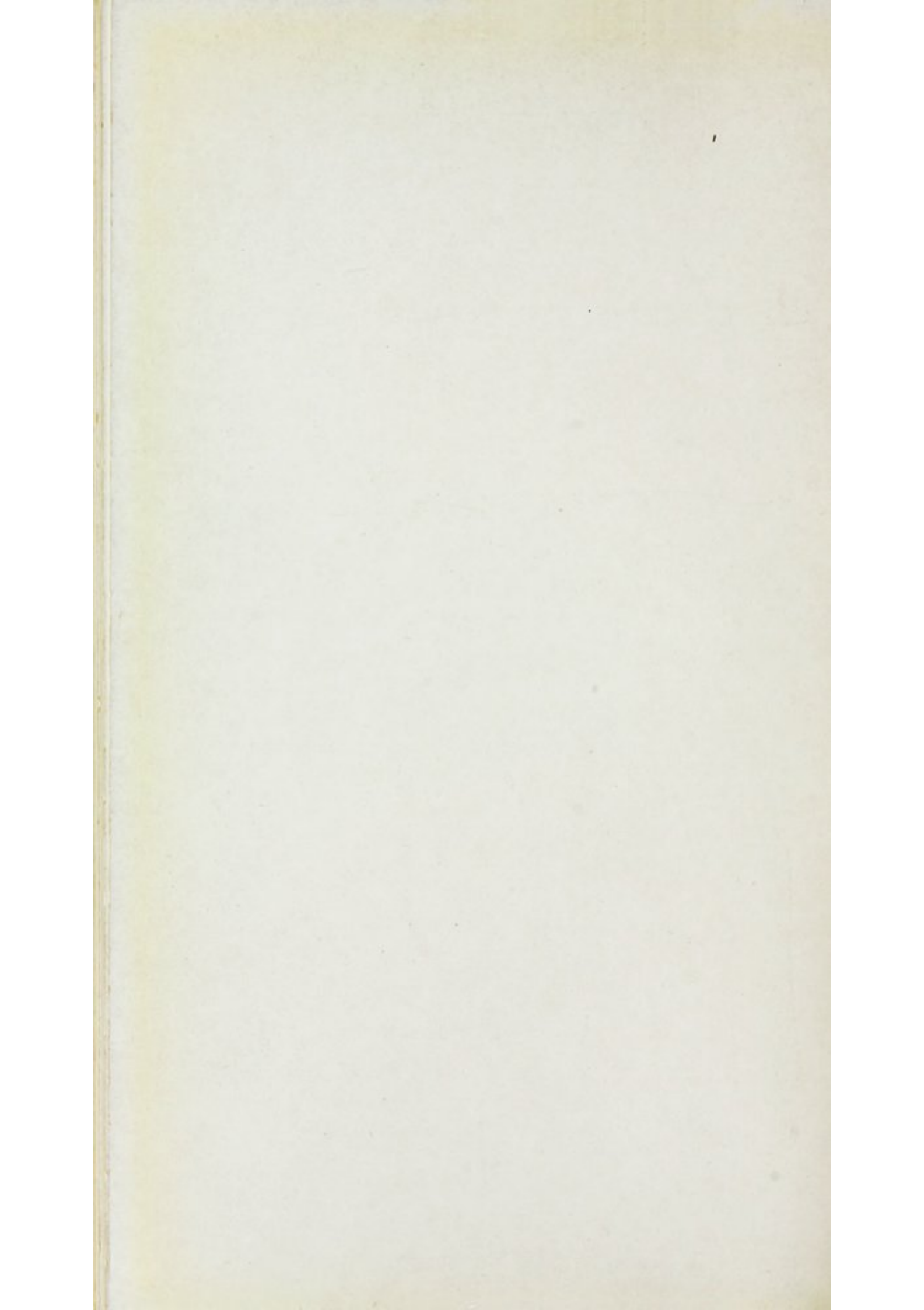
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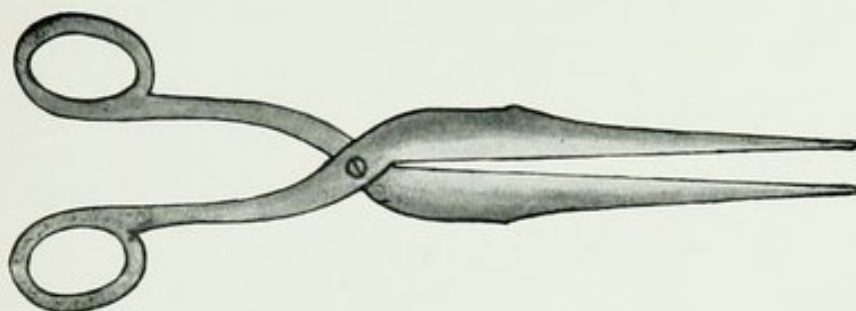
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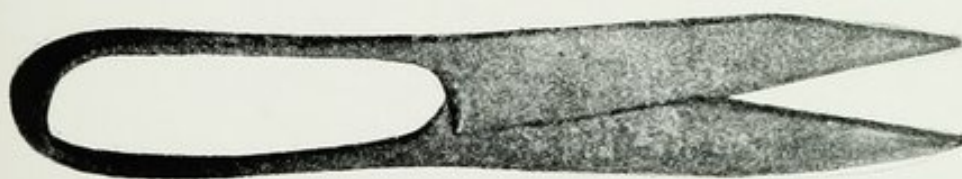
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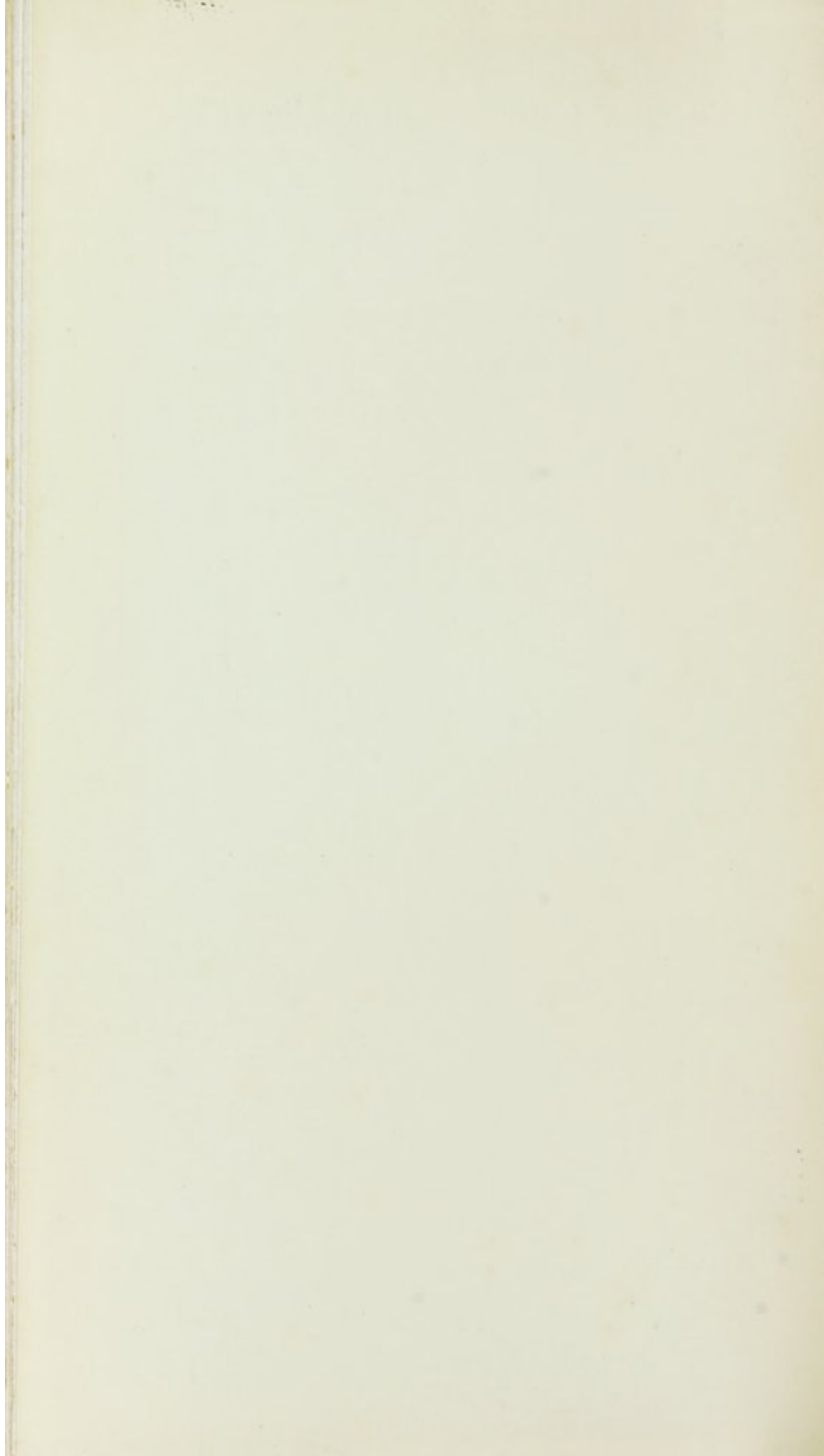
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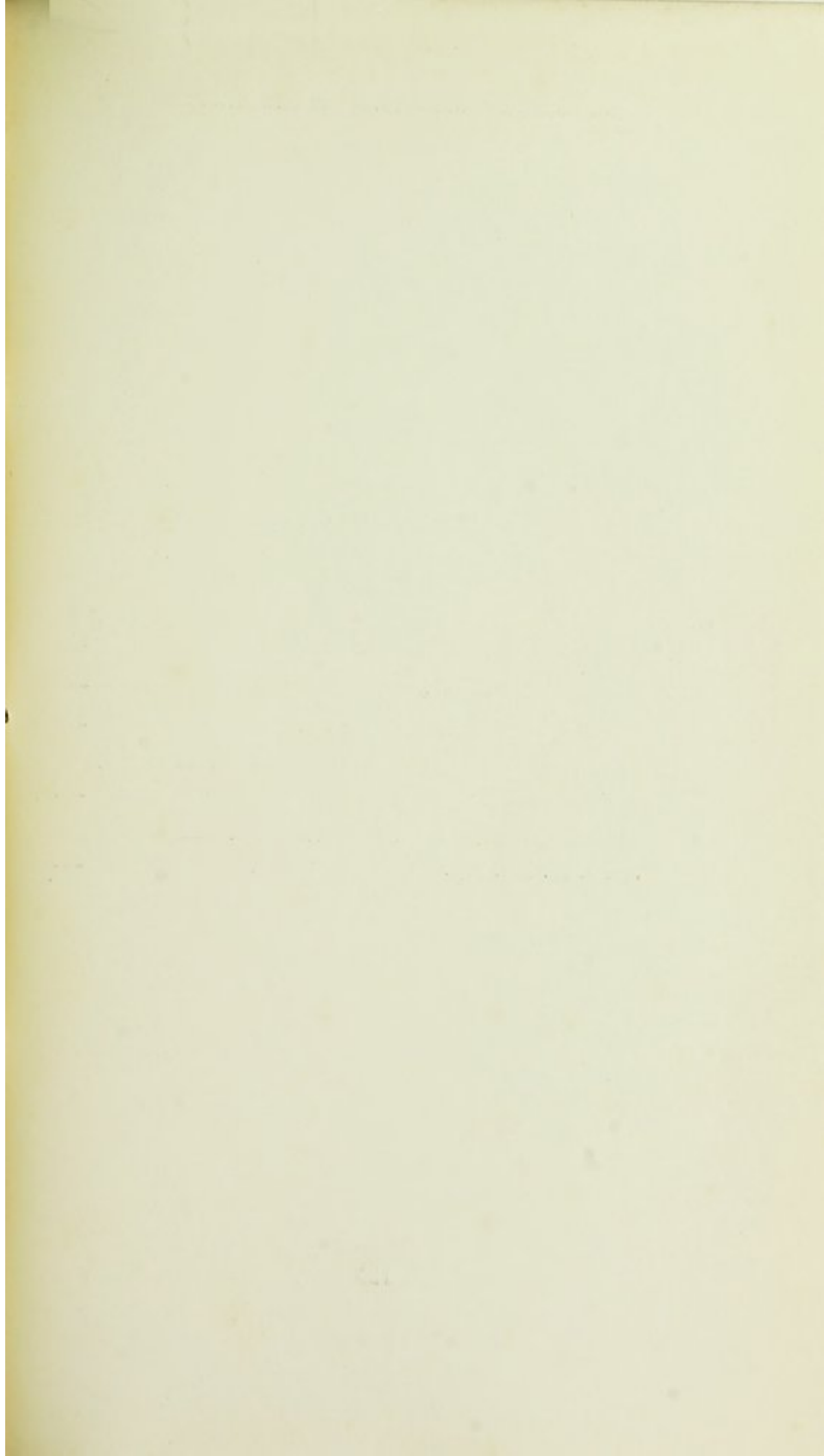


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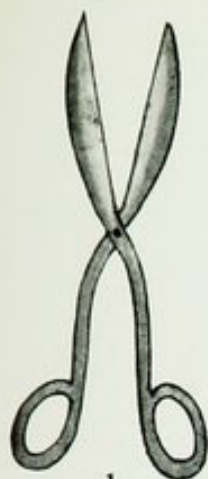
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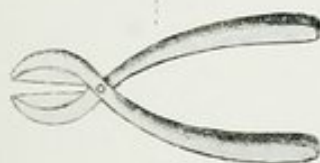
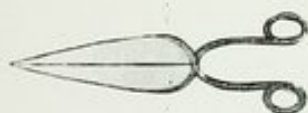
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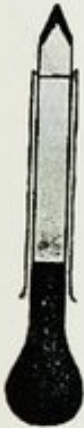
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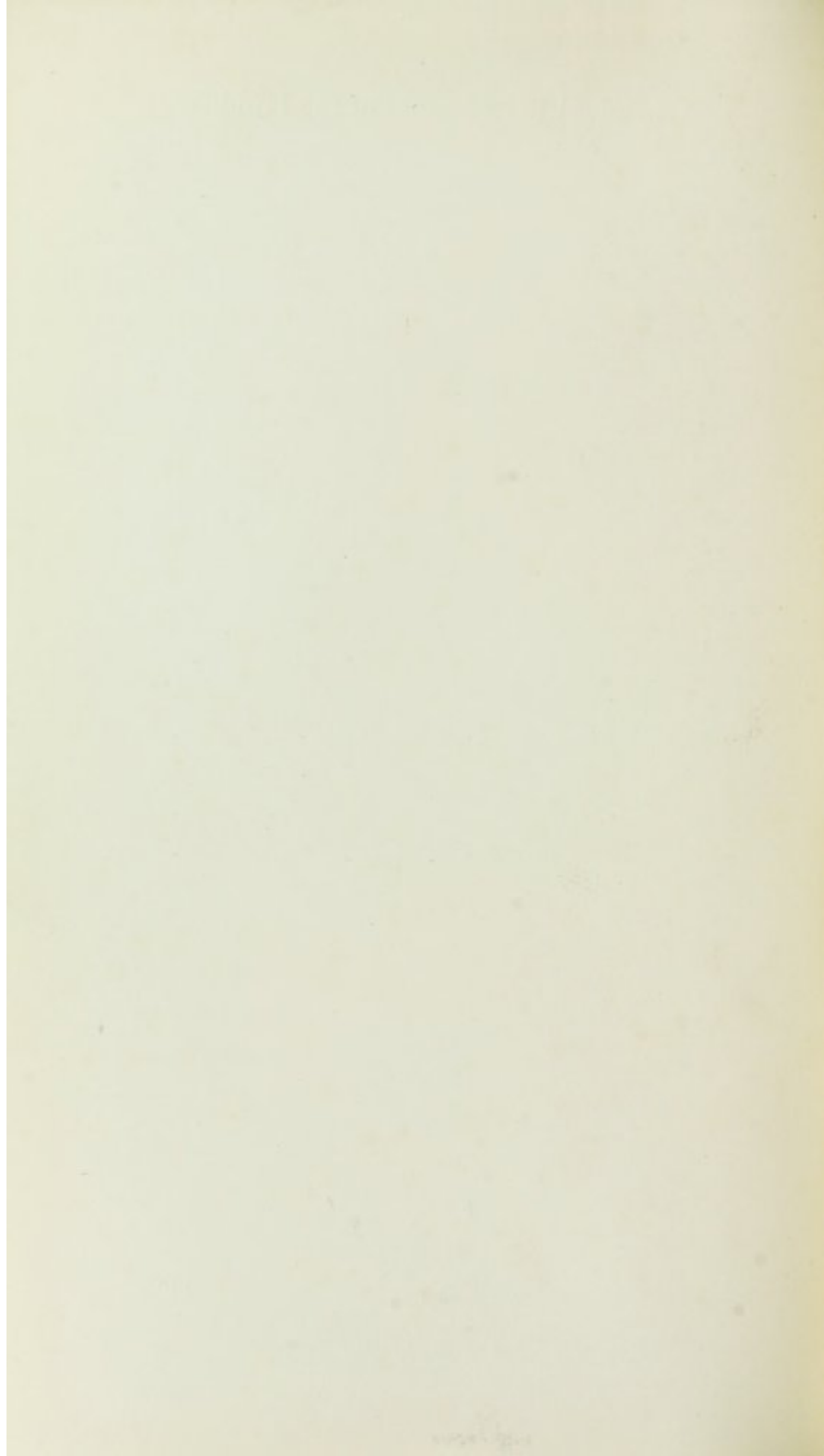
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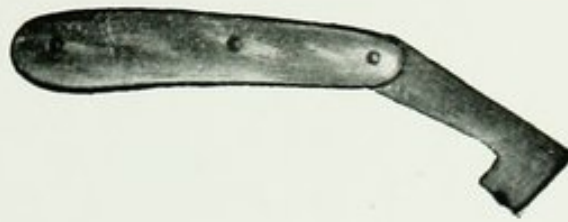
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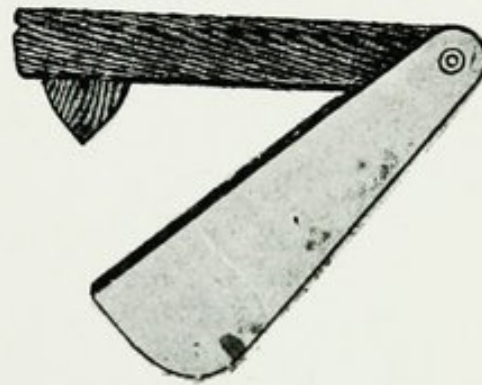
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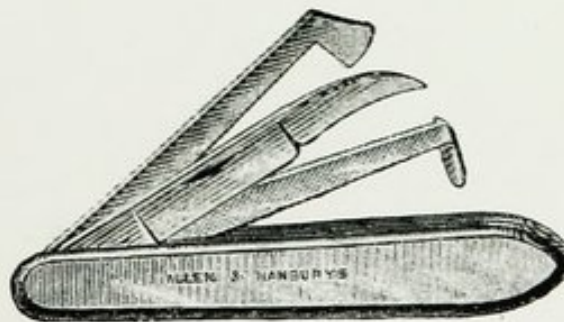
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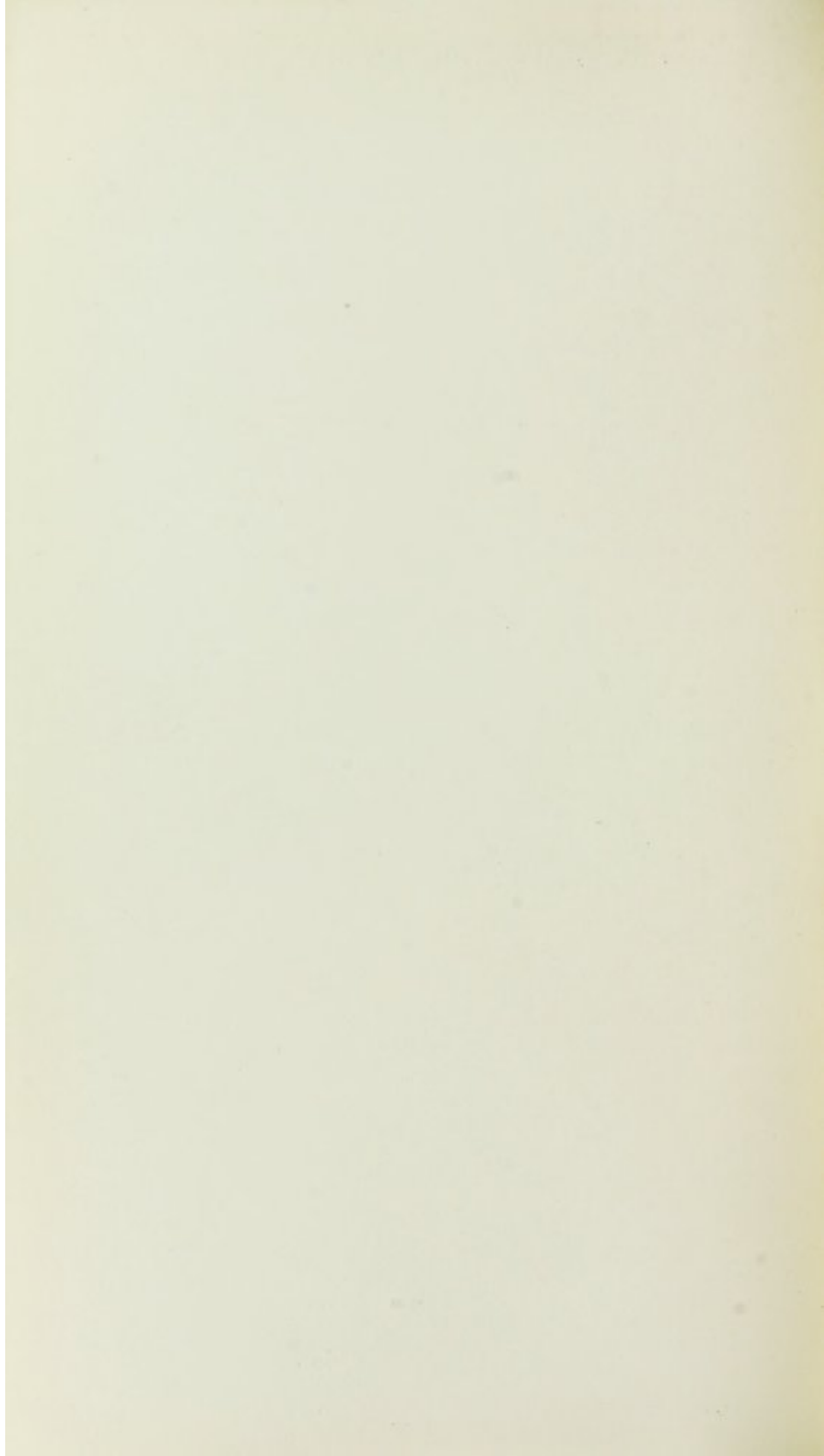
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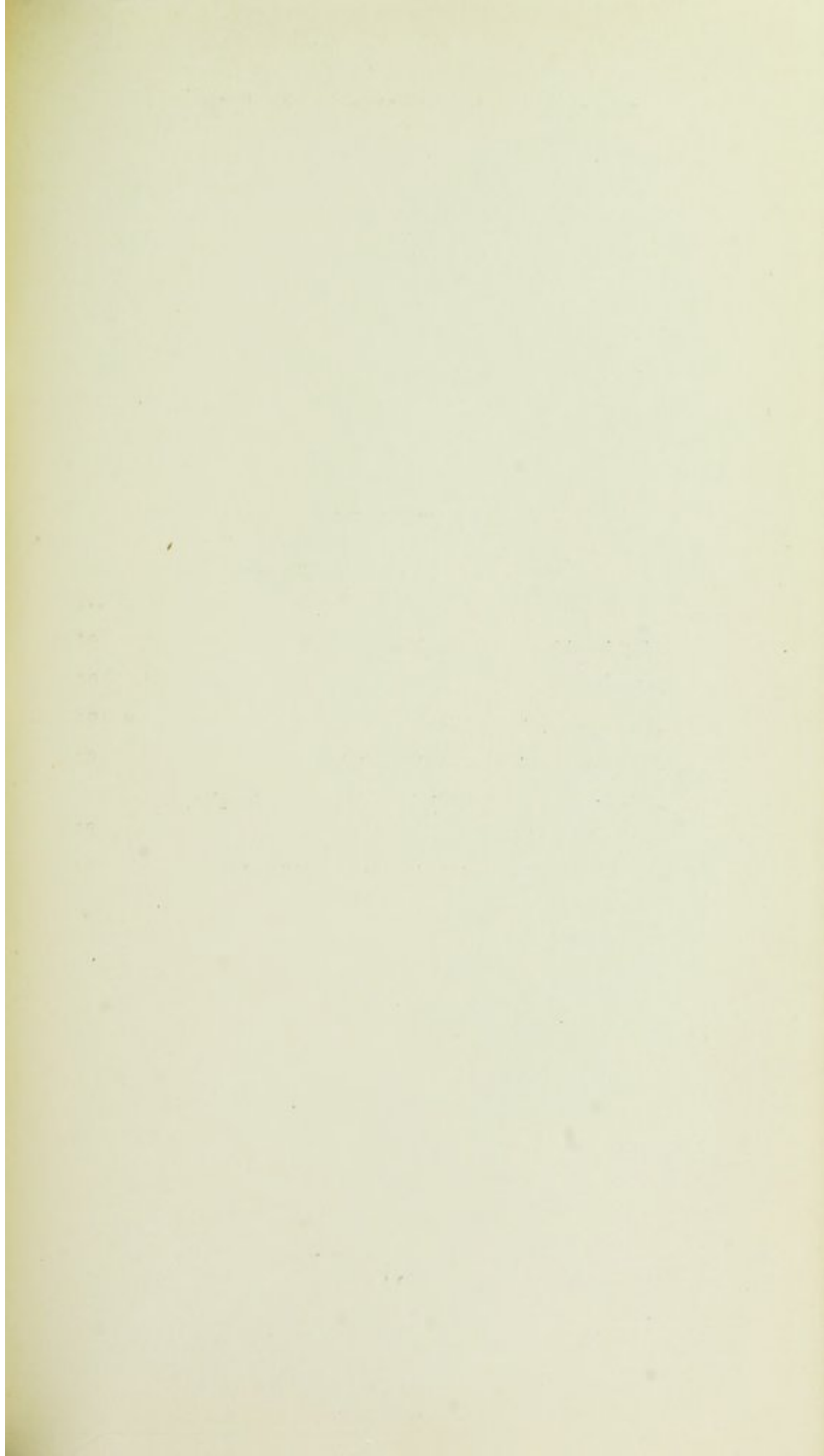


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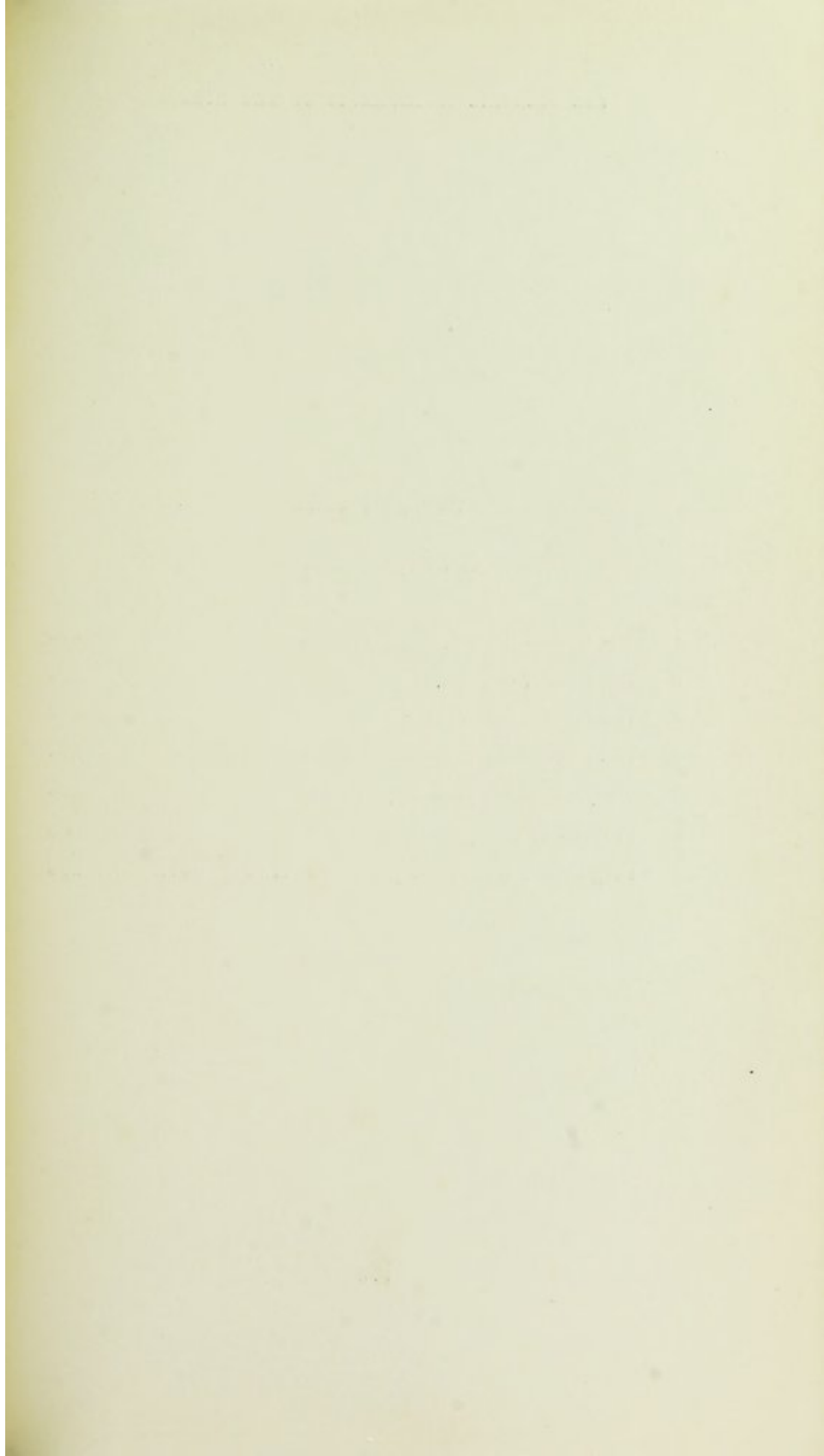


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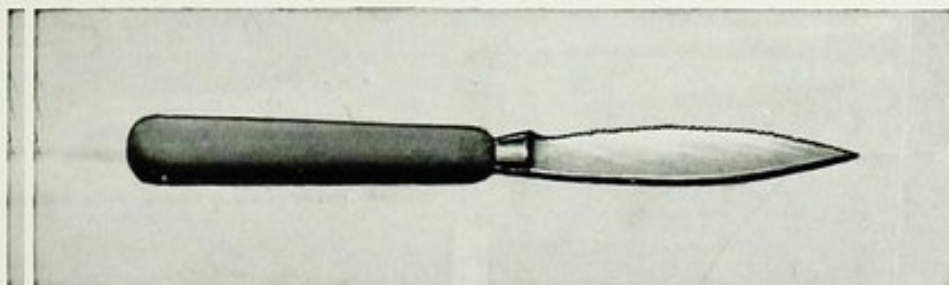
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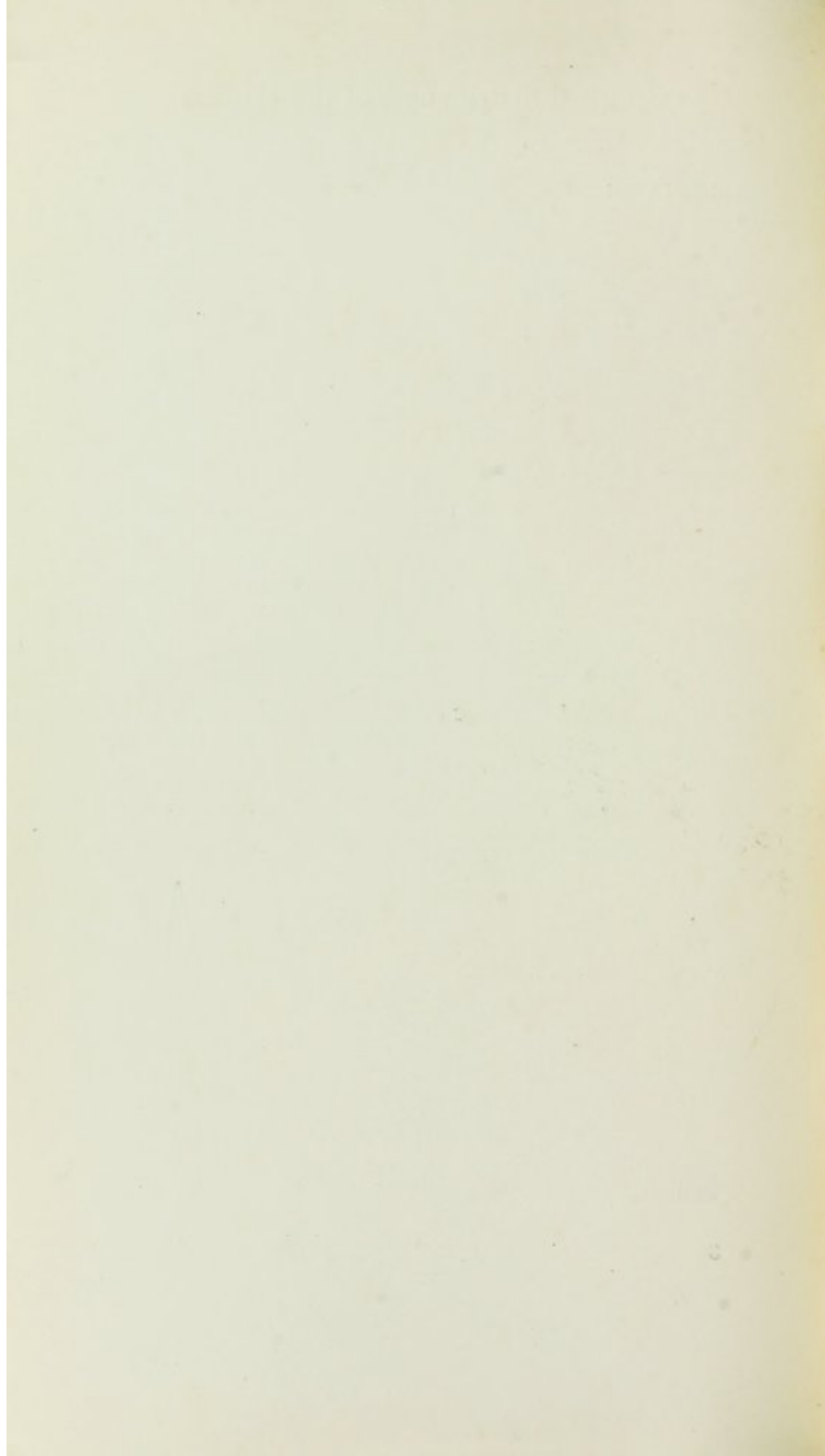


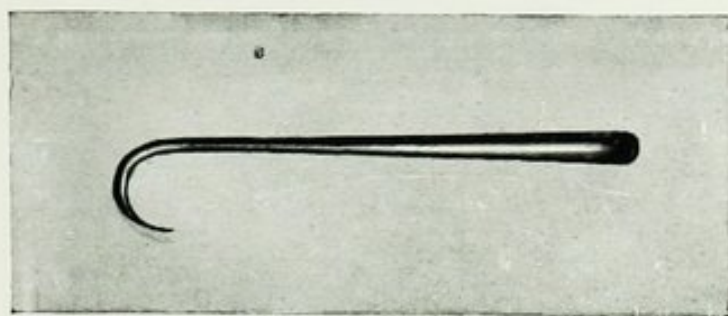
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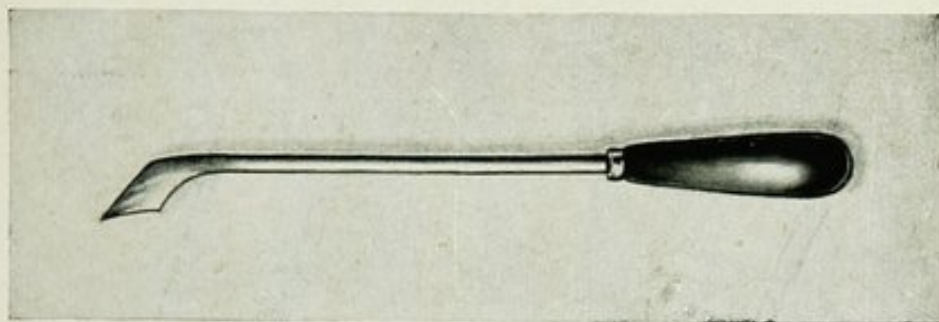
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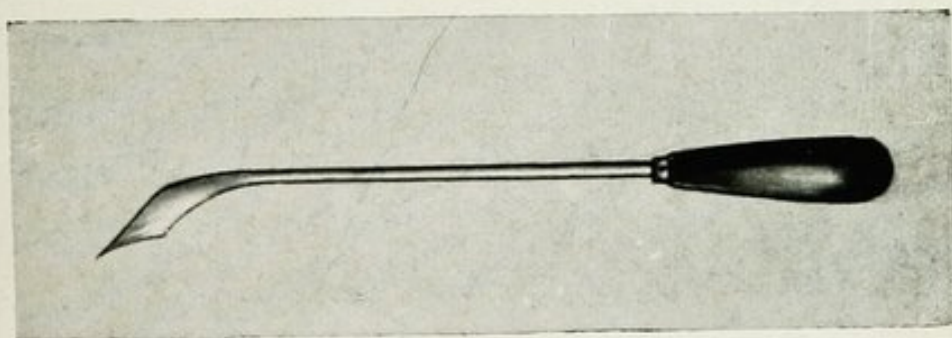
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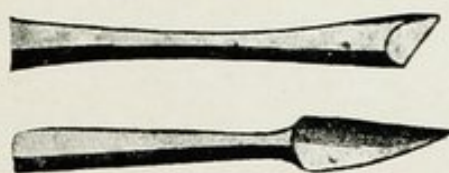
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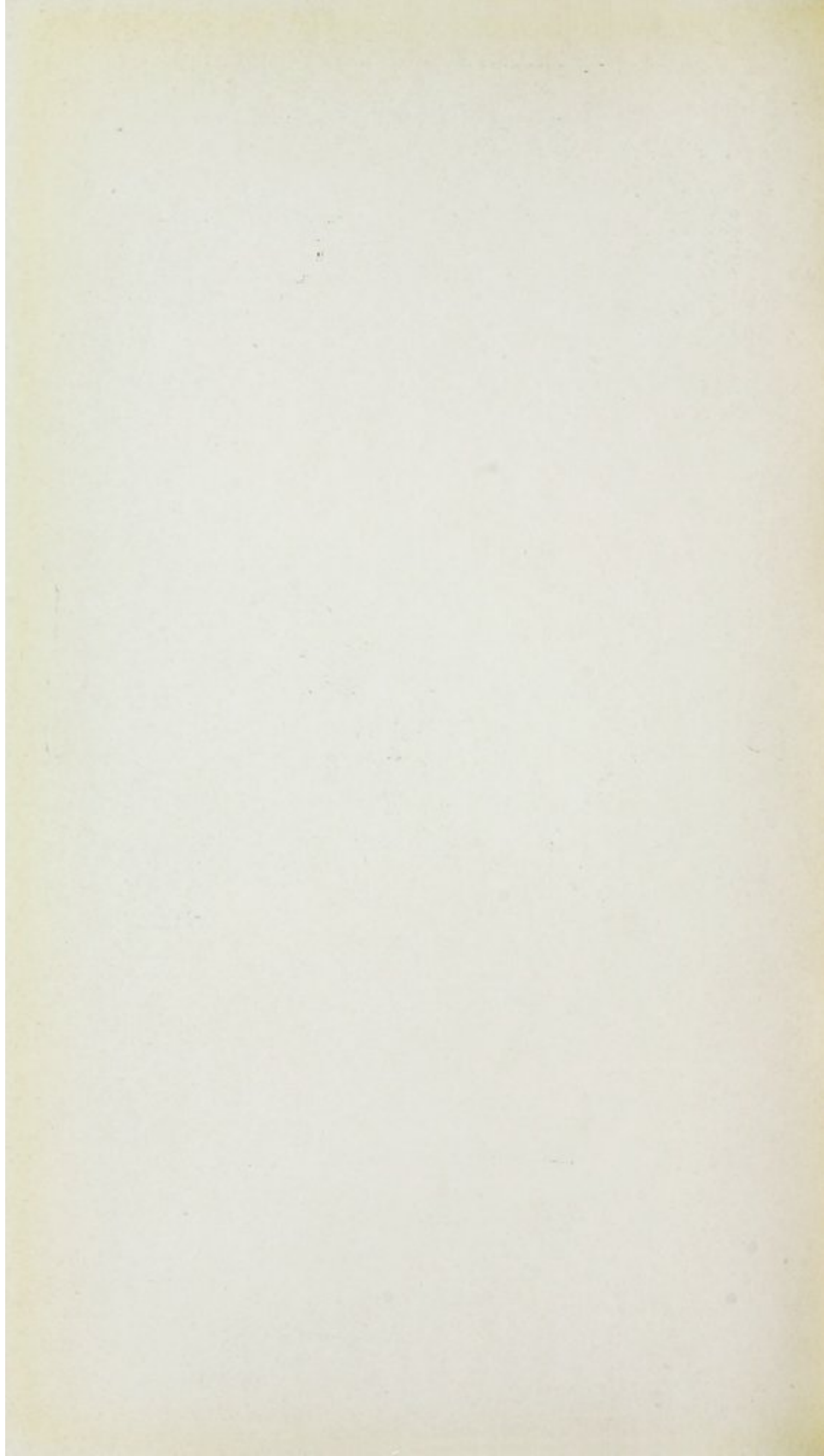


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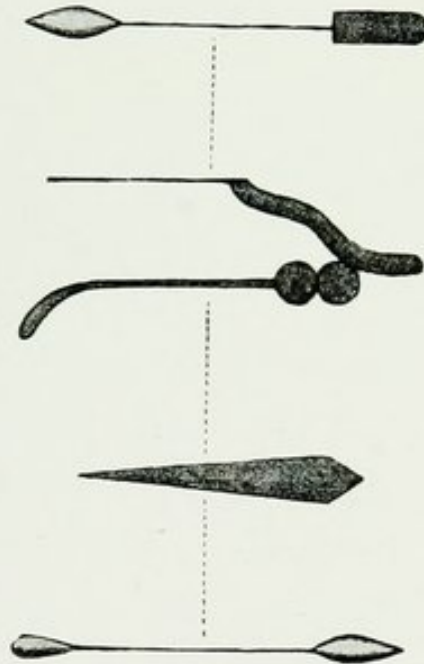
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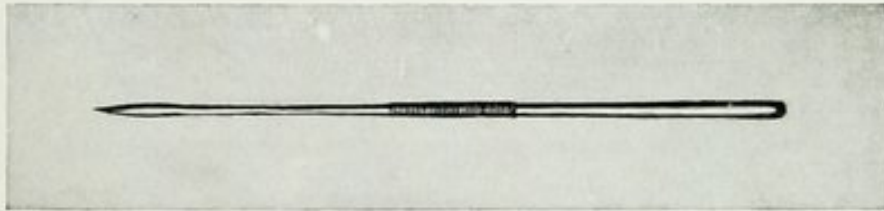
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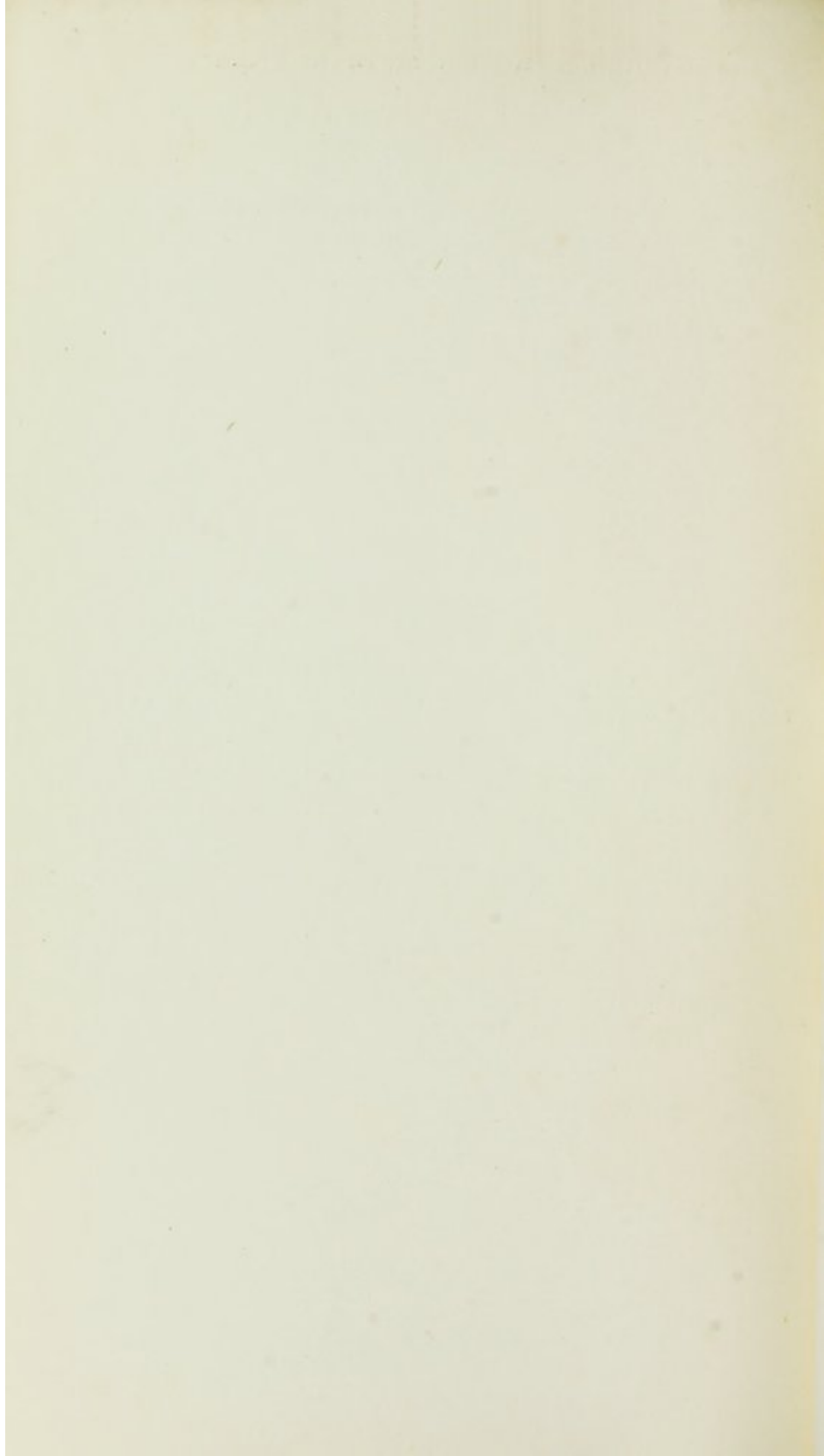
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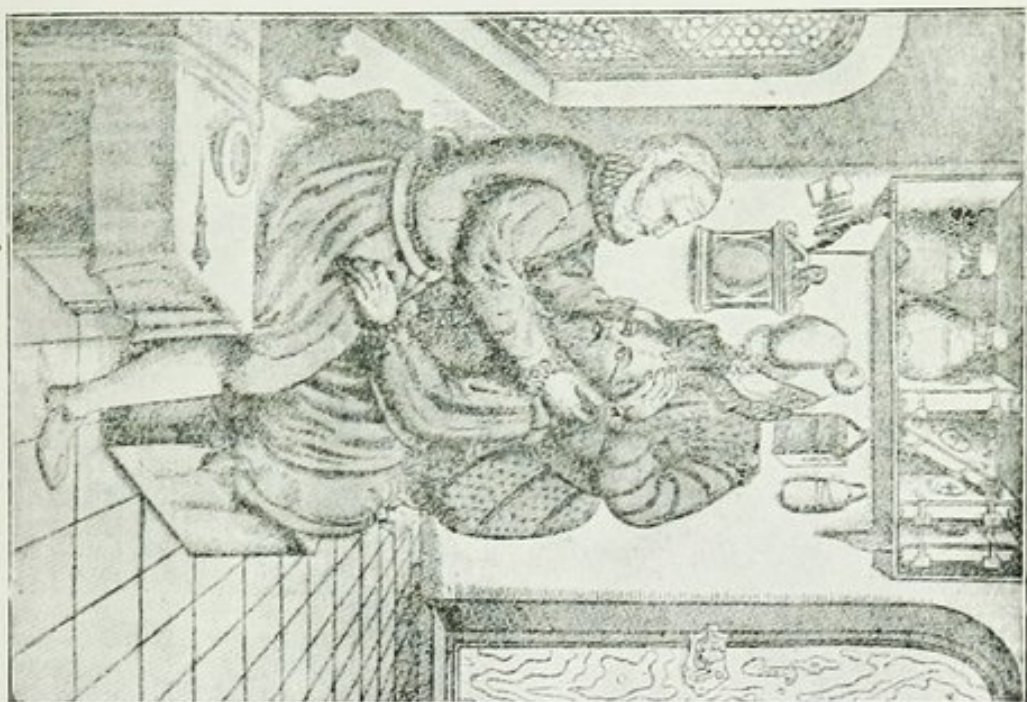
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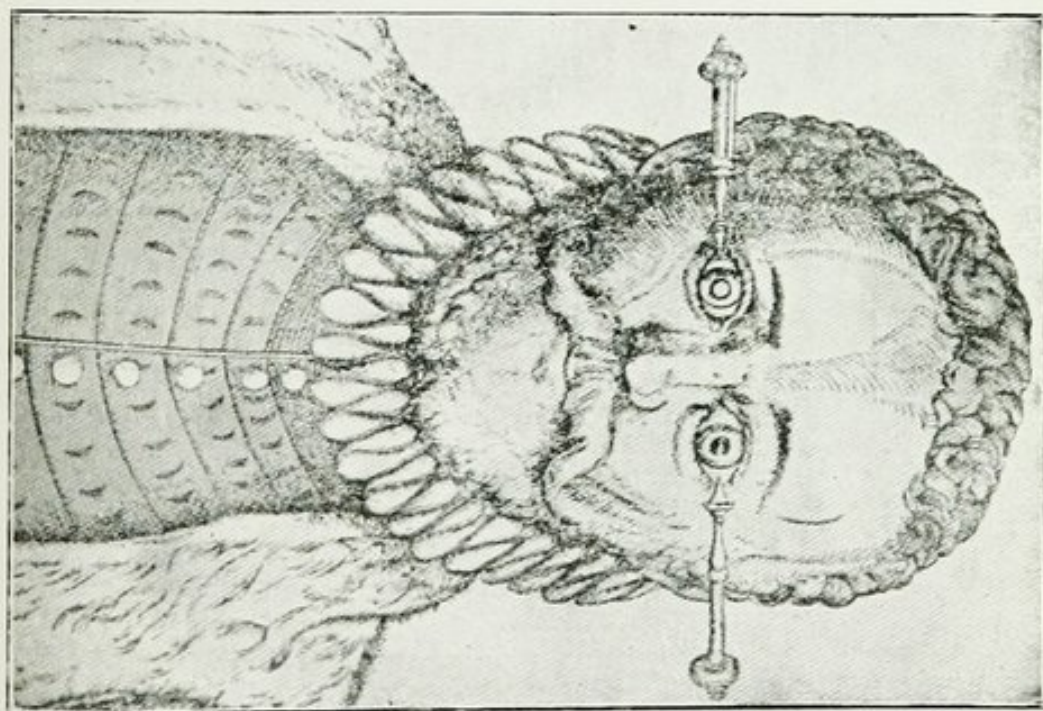
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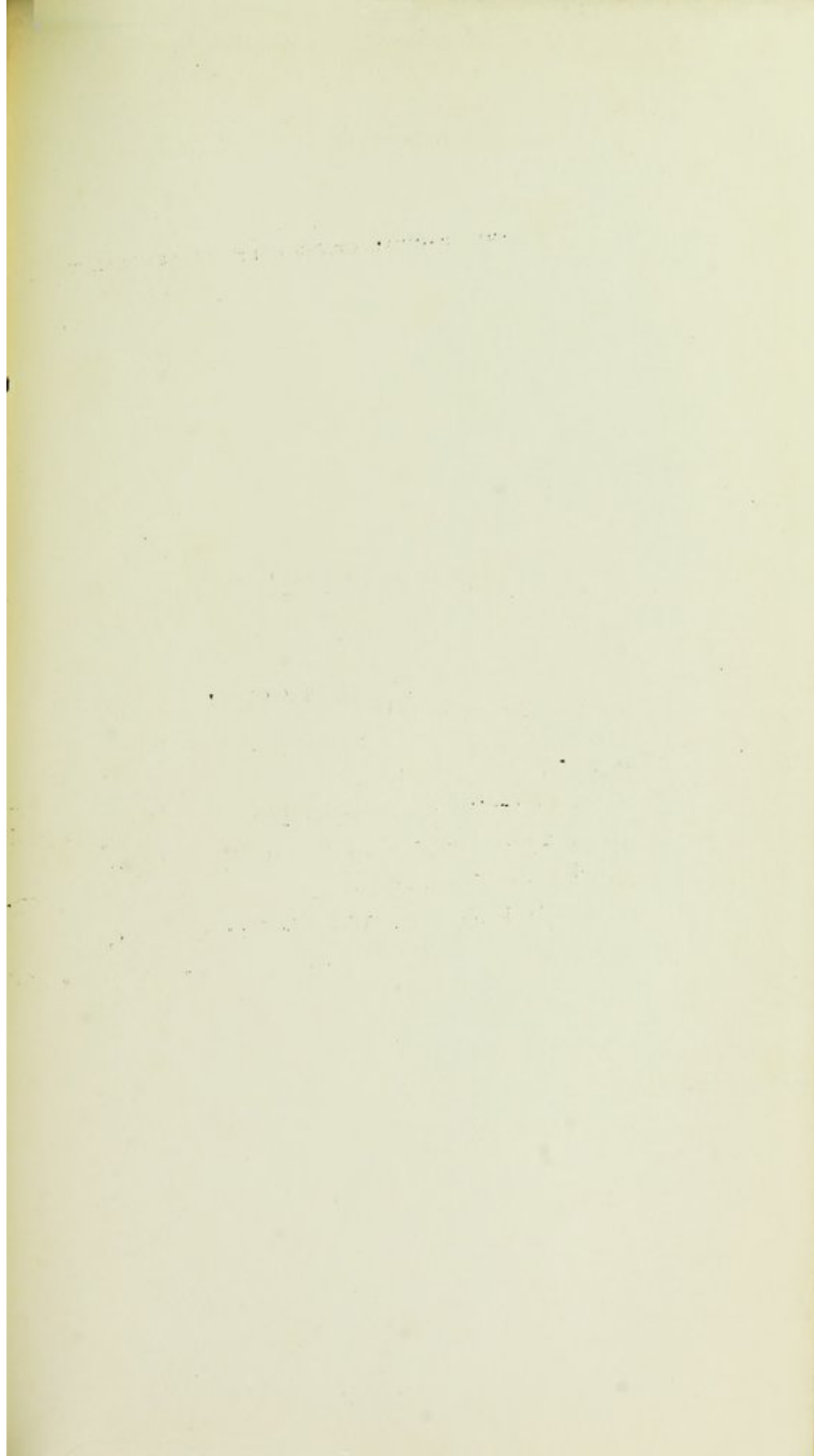


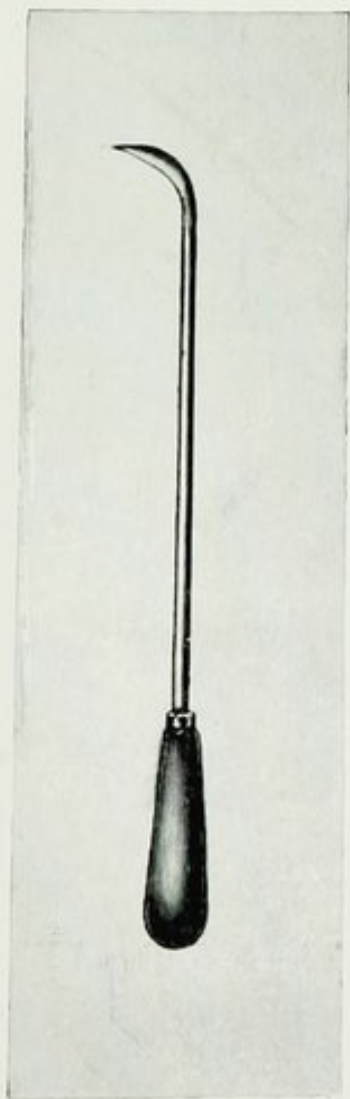
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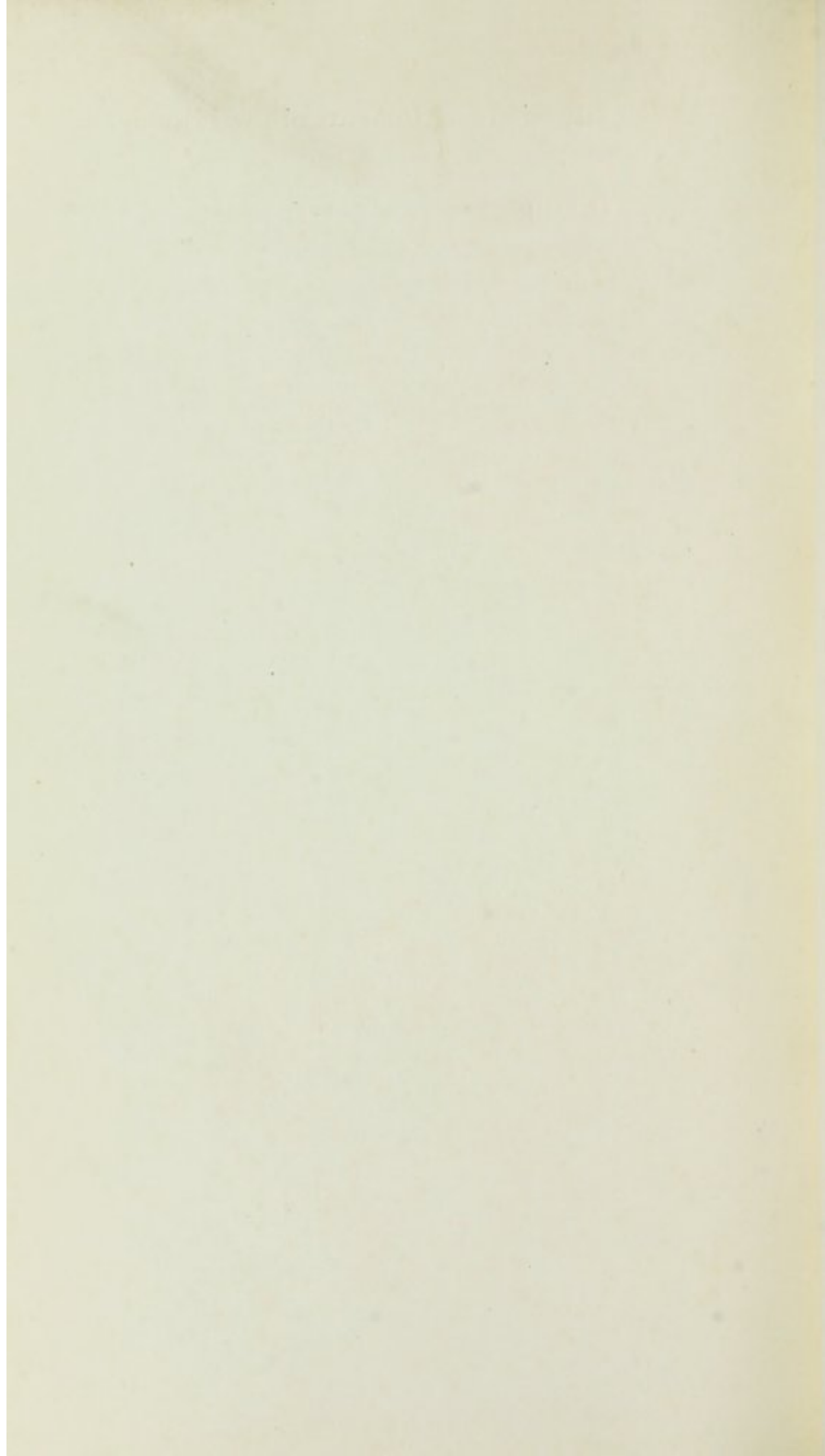
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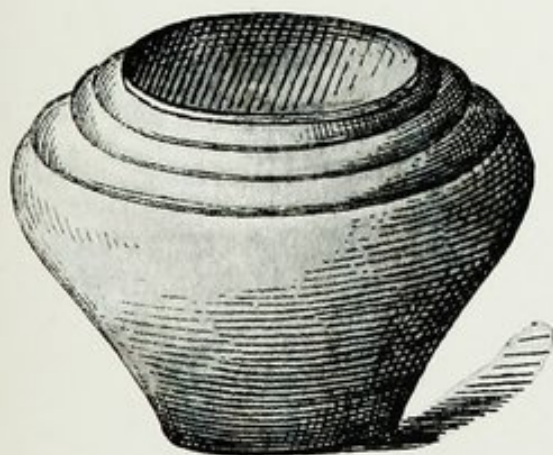
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THE SURGICAL INSTRUMENTS OF THE HINDUS.

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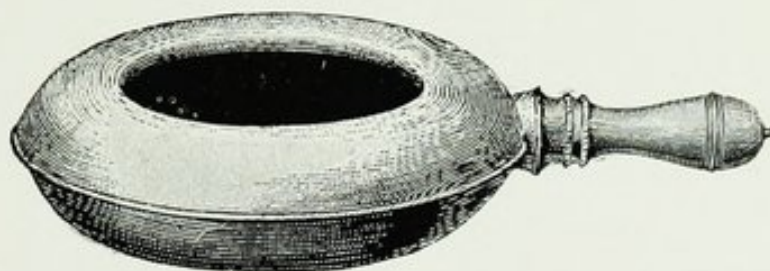
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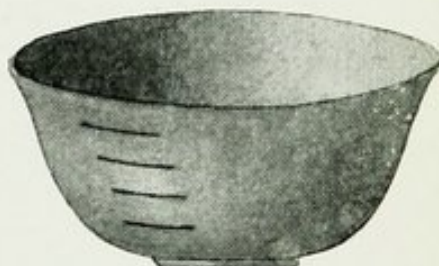
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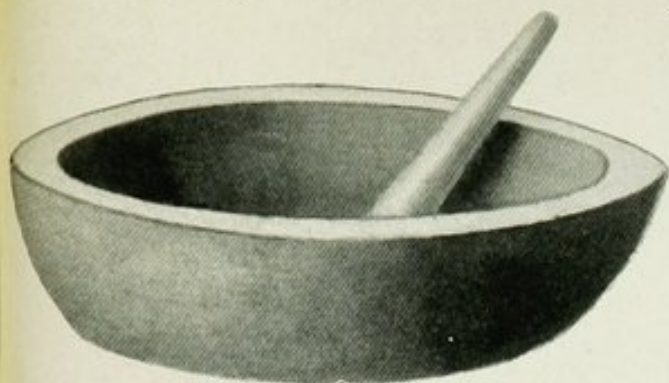


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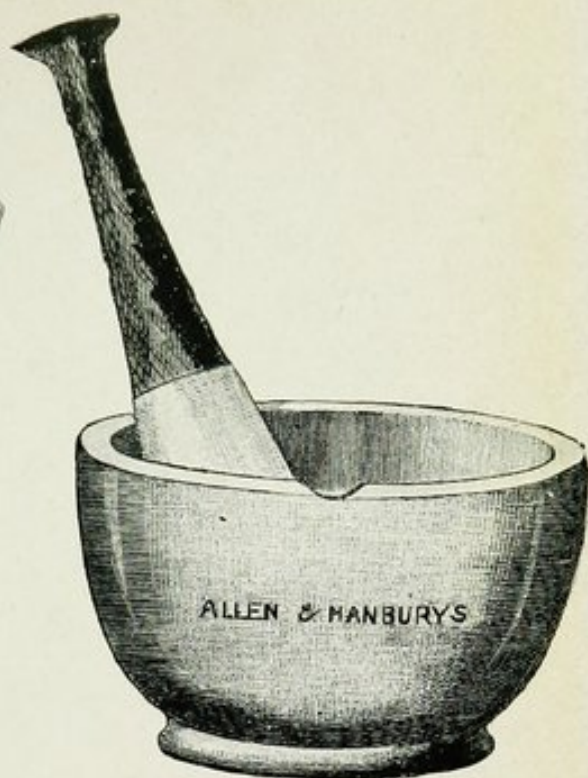
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The Surgical Instruments of the Hindus.

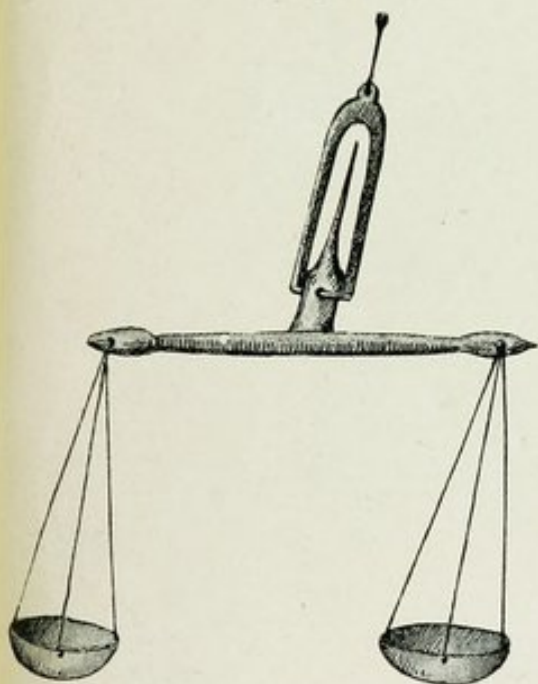
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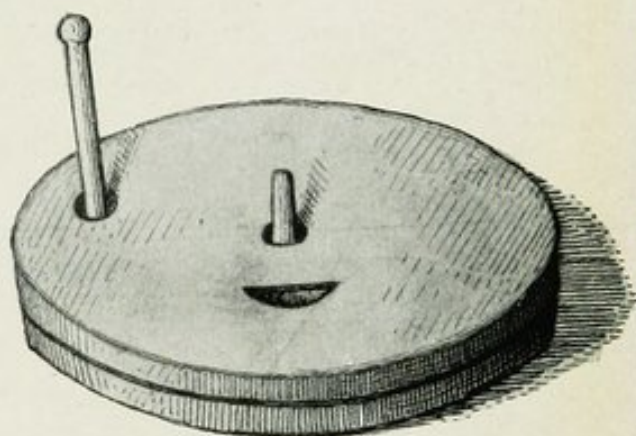
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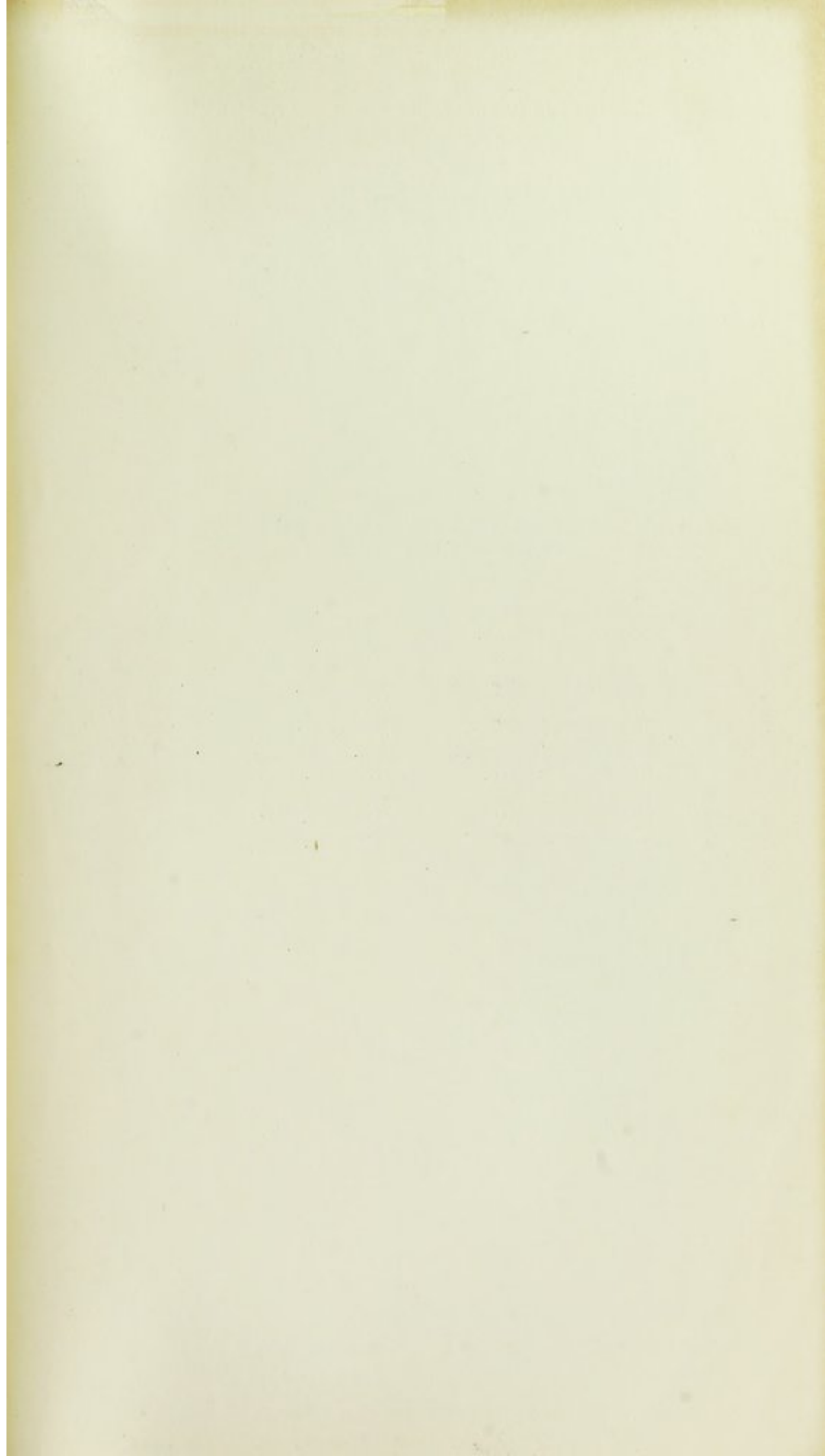


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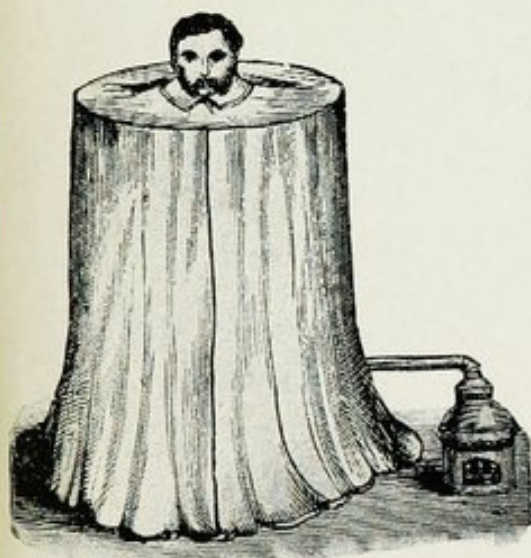
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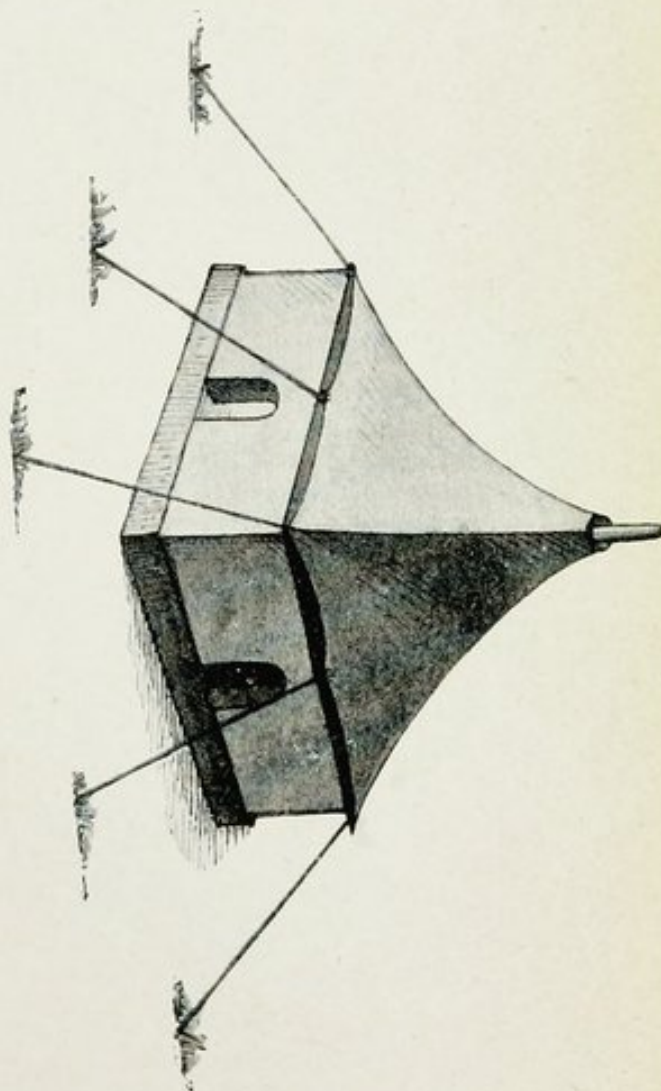
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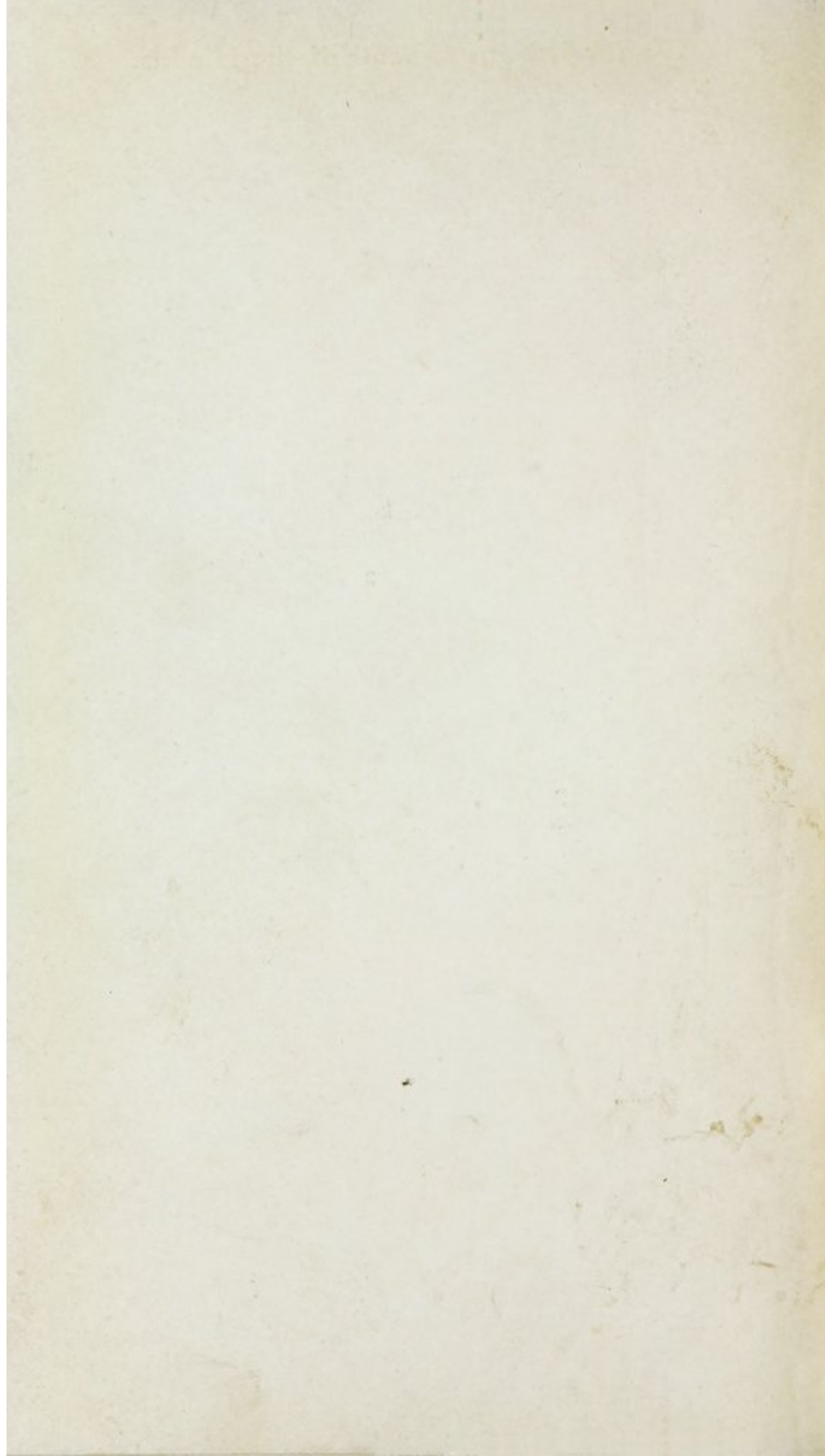
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