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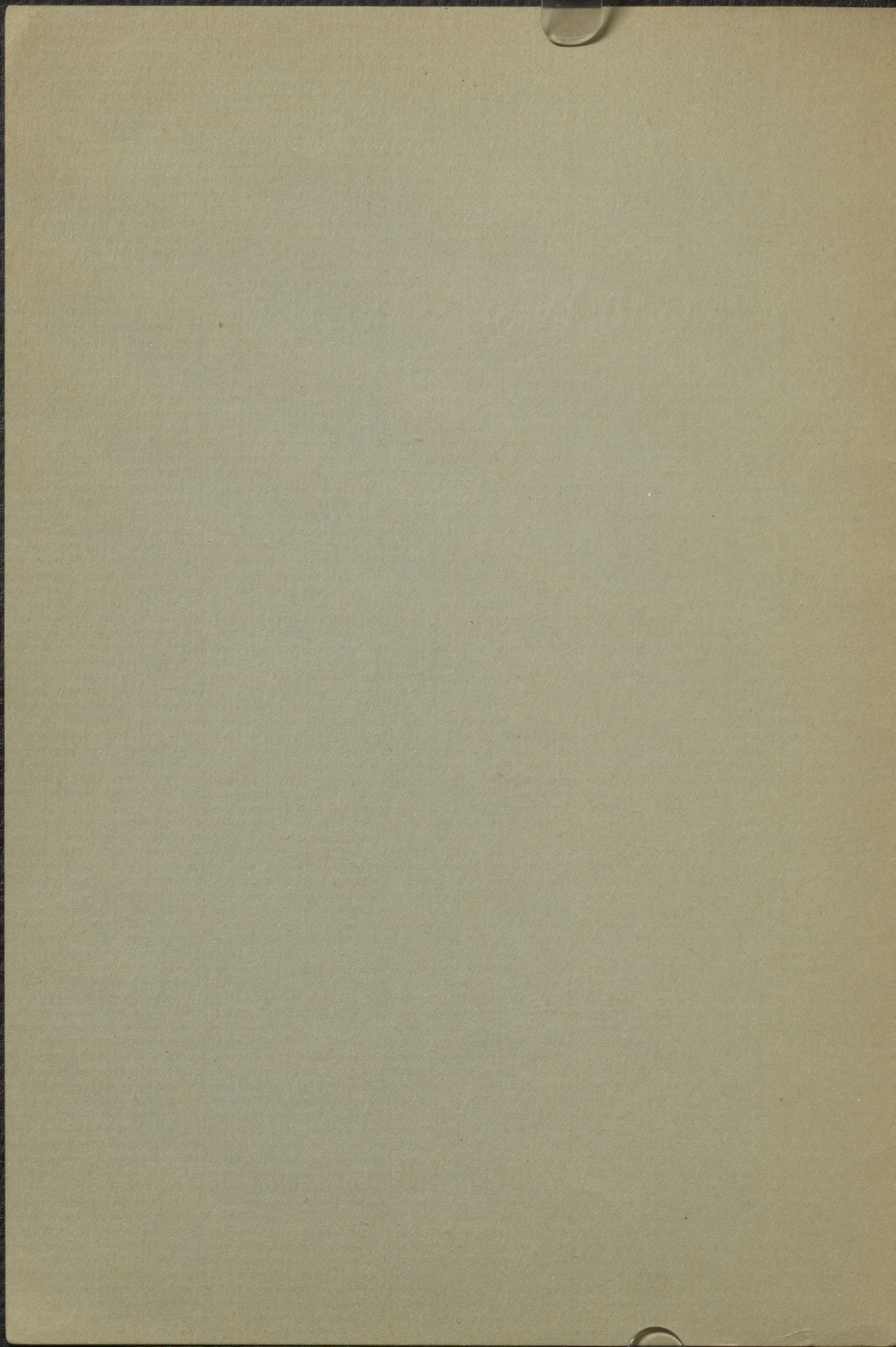
CANADIAN SPESSARTITE

AND

MOUNTAIN CORK,



By B. J. HARRINGTON,  
McGill College.



On Canadian Spessartite and Mountain Cork,

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Harrington, B. J.  
Canarian Sparrows  
and Mountain Cocks

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(Reprinted from the CANADIAN RECORD OF SCIENCE, October, 1890,

## ON CANADIAN SPESSARTITE AND MOUNTAIN CORK.

By B. J. HARRINGTON, McGill College.

Read before the Natural History Society, March 31st, 1890.

### 1.—SPESSARTITE.

The Villeneuve Mica Mine, on the thirtieth lot of Range 1, Villeneuve, Ottawa County, P.Q., is already known to many on account of the interesting minerals which it has afforded. The vein, which was at one time worked for mica, is a coarse granite, traversing grey garnetiferous gneiss, and consisting of quartz, muscovite, orthoclase and albite, with occasionally black tourmaline and garnet. It has also yielded the rare minerals uraninite and monazite.<sup>1</sup> The garnet occurs imbedded in both the feldspar and the muscovite, and crystals of that found in the latter have recently been analysed by the writer. The crystals are much distorted and more or less flattened in the direction of the cleavage planes of the mica. They range, in the few specimens examined, from one up to about ten mm. in

<sup>1</sup> G. C. Hoffmann, *Ann. Rep. Geol. Can.* 1886, p. 11 T., and F. A. Genth, *Am. Jour. Sci.*, 1889, p. 203.

greatest diameter, and are of a beautiful red colour. They are rather brittle, but possibly some might be obtained which would stand being cut as gems. The specific gravity was found to be 4.117, and analysis of carefully selected material gave the following percentage composition :—

Silica.....	36.30
Alumina.....	19.20
Ferrous Oxide.....	10.66
Manganous Oxide.....	30.06
Lime.....	3.07
Magnesia.....	0.43
Loss on ignition.....	0.31
	100.03

The atomic and quantivalent ratios deduced from the above figures are:—

	Atomic.		Quantivalent.	
Si ...	605 × 4 =	2420	2420	1
Al ...	378 × 3 =	1134	1134	} 2408 1
Fe''..	148 × 2 =	296	1274	
Mn ..	423 × 2 =	846		
Ca ...	55 × 2 =	110		
Mg...	11 × 2 =	22		

The analysis shows that the mineral is a manganese garnet, approaching very nearly in composition to the original spessartite, but containing more lime. The iron was proved to be all in the ferrous state. The figures given as loss on ignition indicate the loss on heating for about fifteen minutes. Further heating caused a gain in weight, owing to oxidation of the iron.

## 2.—MOUNTAIN CORK.

In 1877, the writer found on the dump at the "Grant Phosphate Mine," in the township of Buckingham (south  $\frac{1}{2}$  of lot 18, Range 12), specimens consisting of mountain cork and mountain leather. Under the latter name they were referred to in his "Report on the Minerals of some of the Apatite-bearing Veins of Ottawa County," but were not then analysed quantitatively. During the past few years, in the Emerald Mine, on the same lot as the above, similar



material has been obtained in masses of considerable size, one specimen presented to the Peter Redpath Museum by Mr. F. W. Warwick, containing about half a cubic foot.

It consists mainly of mountain cork, though on the surface it is in places slightly foliated or leather-like. Some portions contain irregular grains of quartz and minute crystals of copper pyrites<sup>1</sup>; but fragments were selected for examination which were apparently free from intermixed impurities. They were creamy-white in colour, and were found to have a specific gravity of 3.05.<sup>2</sup> An analysis made in the college laboratory by Mr. Sidney Calvert, gave the following results:—

Silica.....	53.99
Alumina.....	0.55
Ferric Oxide.....	1.00
Ferrous Oxide.....	10.99
Manganous Oxide.....	2.19
Lime.....	12.53
Magnesia.....	16.25
Loss on ignition.....	2.56
	106.06

The atomic and quantivalent ratios deduced from the above analysis are given below, and it will be seen that the mineral is a true bisilicate.

	Atomic.		Quantivalent.	
Si .....	899	× 4 =	3596	} 3596 2
Al .....	10	× 3 =	30	
Fe''' .....	12	× 3 =	36	} 1692 1
F'' .....	152	× 2 =	304	
Mn .....	31	× 2 =	62	
Ca .....	224	× 2 =	448	
Mg .....	406	× 2 =	812	

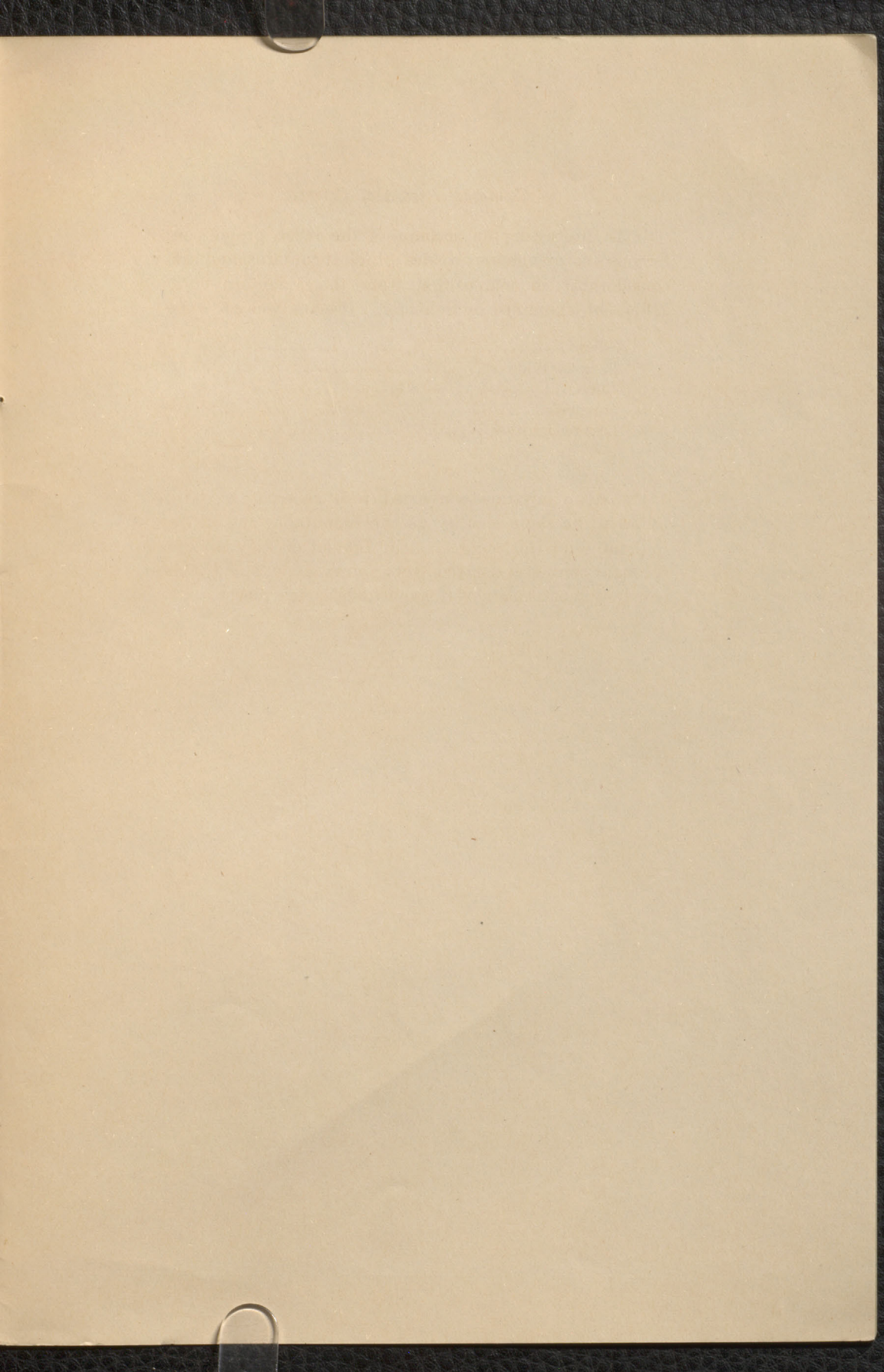
<sup>1</sup> The crystals are mostly 1 to 2 mm. in diameter and many of them black superficially. When freshly fractured they have the colour of copper pyrites, with which they also agree in blowpipe characters. To the eye the crystals look like regular octahedrons but are probably tetragonal and a combination of plus and minus sphenoids.

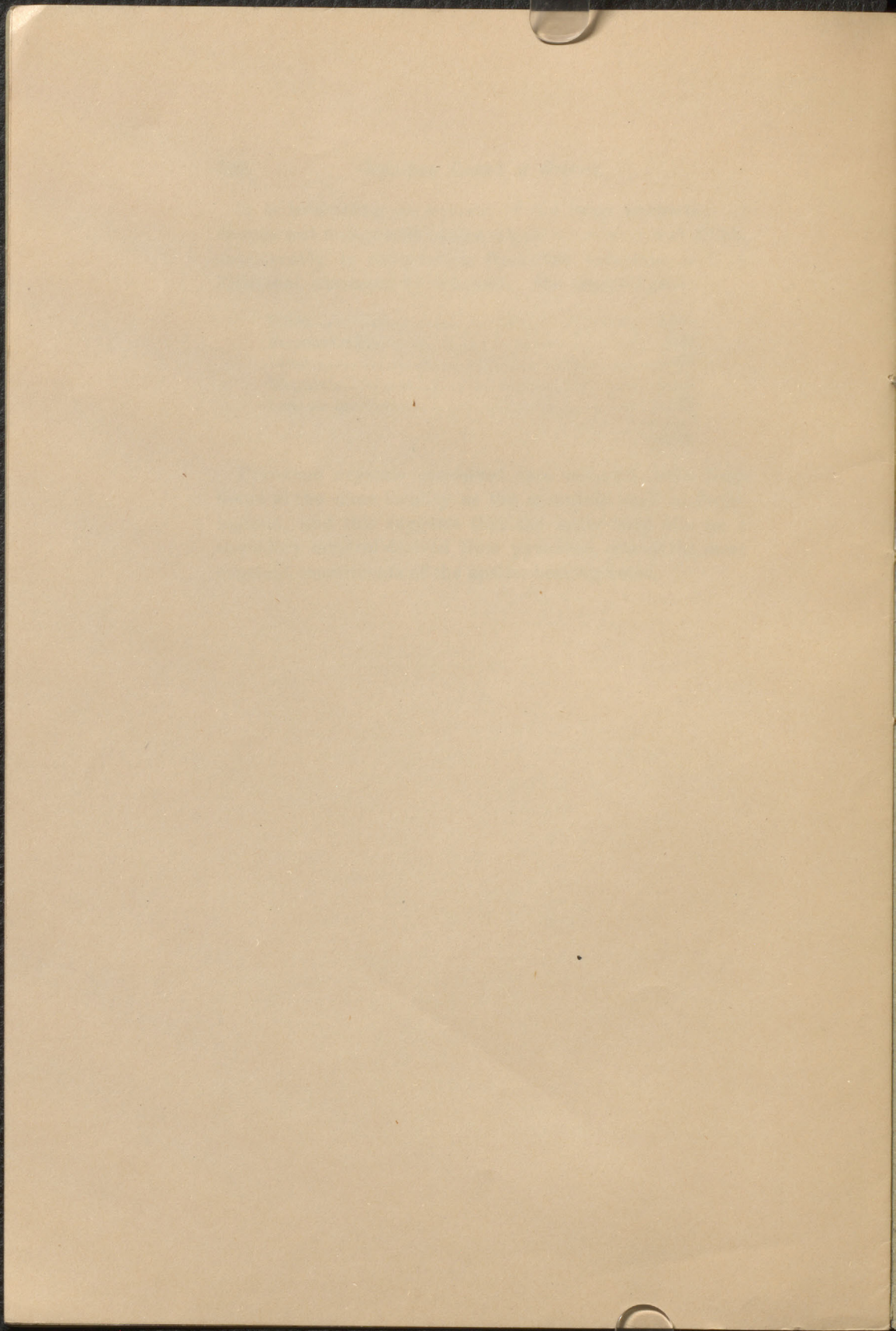
<sup>2</sup> Dry fragments float upon water for a time, owing to the air which they contain. In determining the specific gravity, the air was got rid of by soaking under water in vacuo.

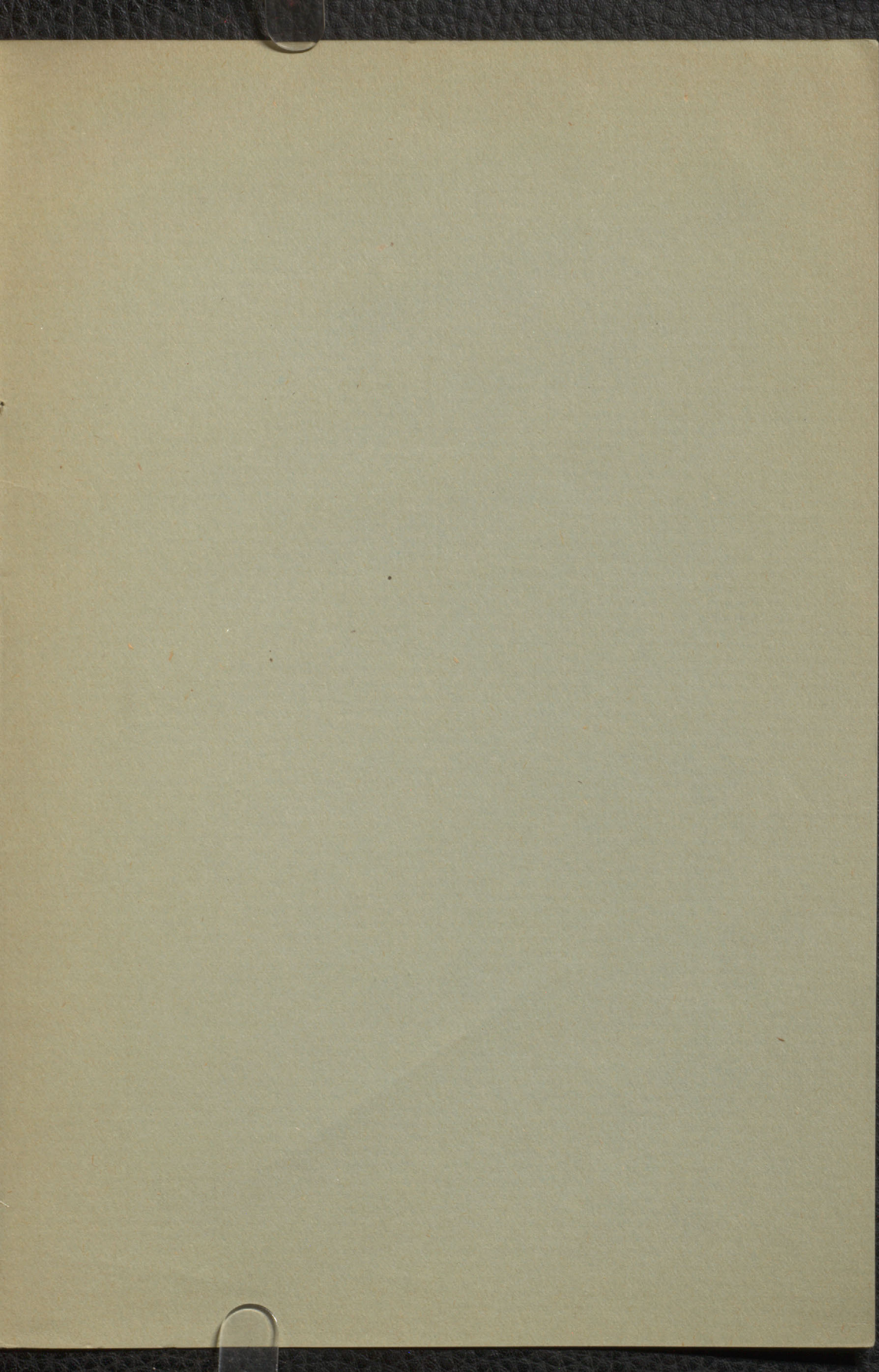
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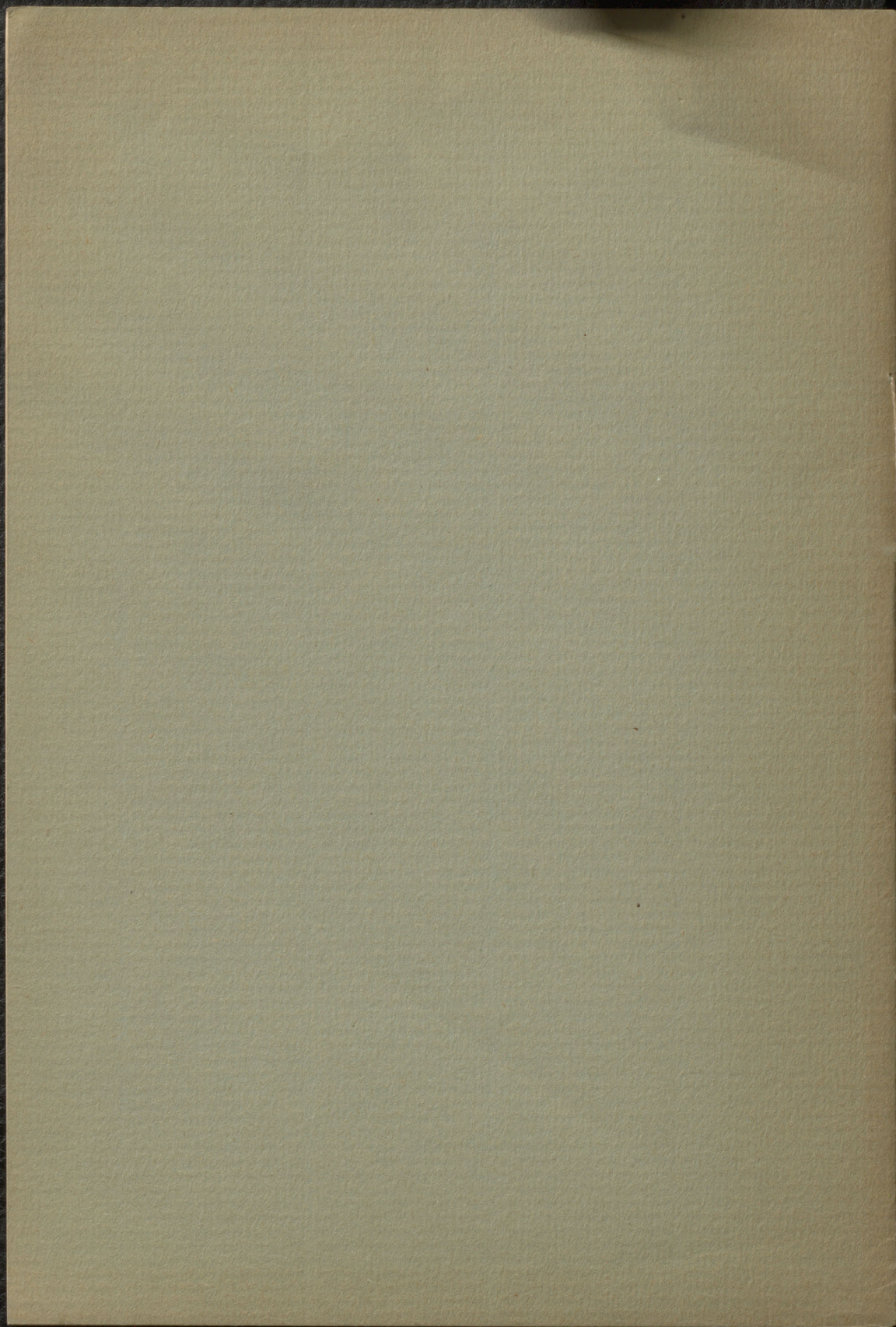
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Pyroxene crystals converted into asbestos have been found at the same locality as the mountain cork in Buckingham, and this suggests that the latter may also be a secondary mineral derived from pyroxene, one of the most constant constituents of the apatite-bearing veins,









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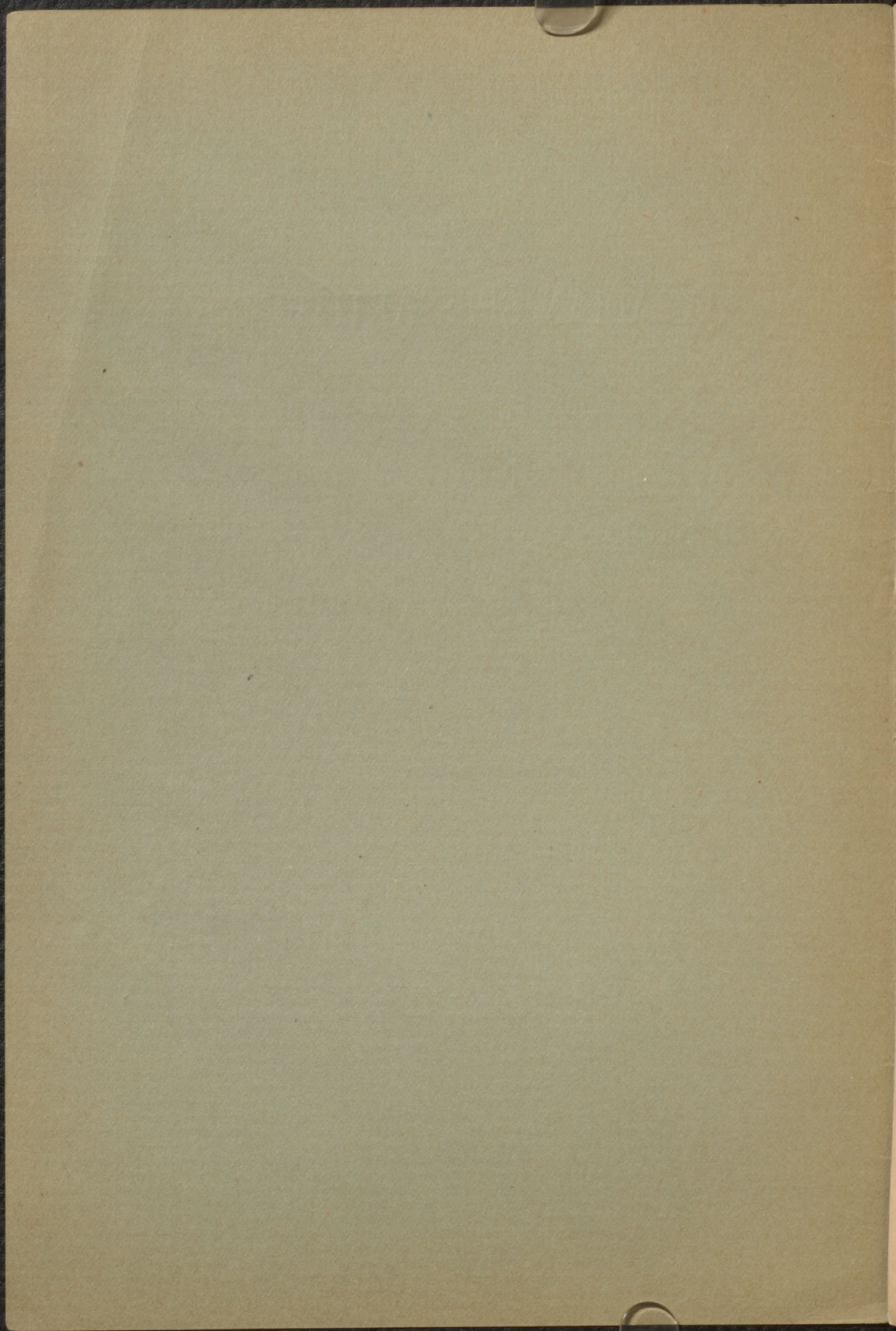
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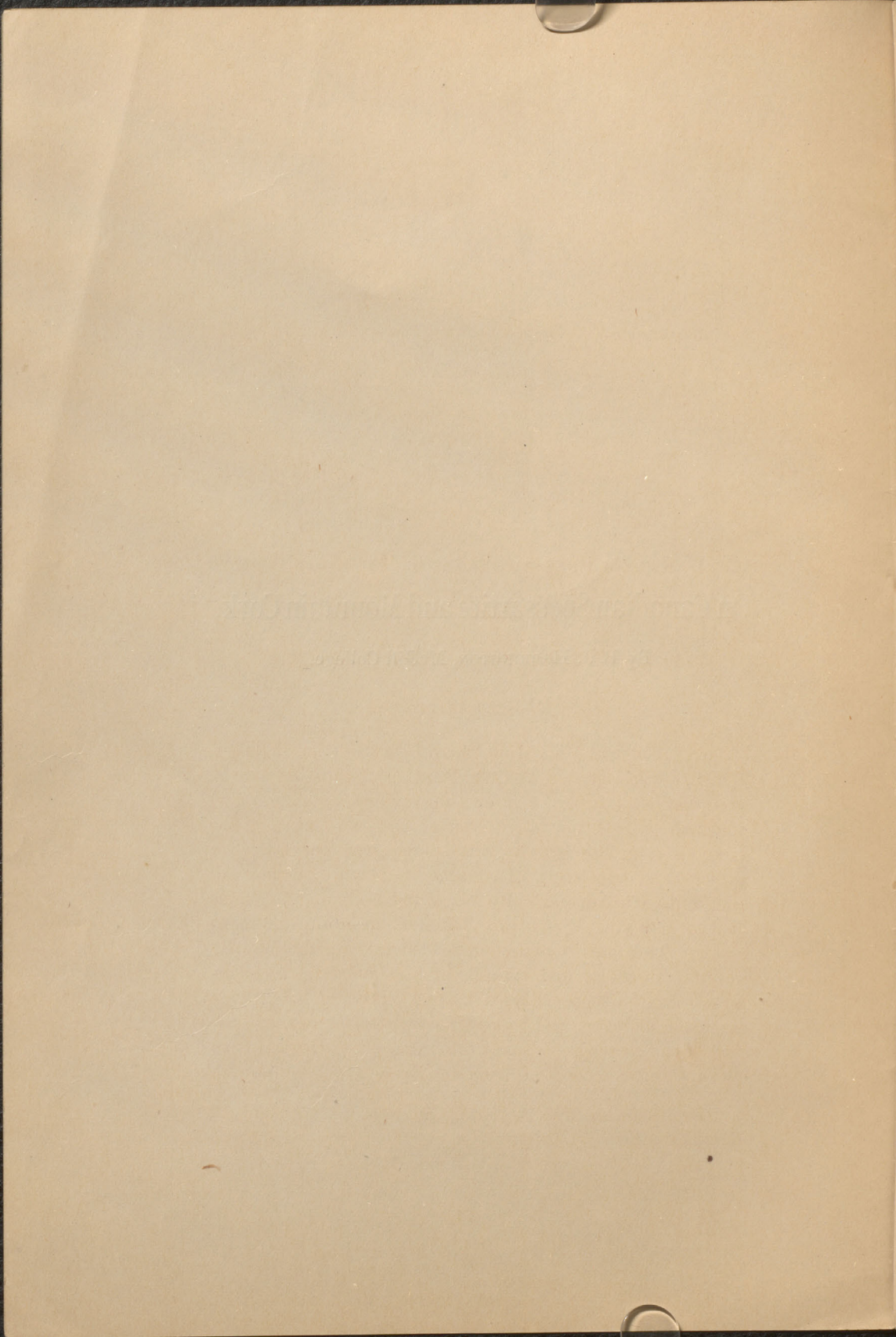
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