is readily attacked by acids and that the resulting product is further degenerated by contact with air. Later workers[4 5] confirmed his statements and indicated other important factors in the deterioration of paper. Further perusal of the literature shows the following external agents to be of consequence in any consideration of paper preservation.

1. Light,[6 7 8 9 10 11] particularly sunlight, attacks both the paper fibers and the sizing material, producing "yellowing" and brittling.

2. The adsorption of moisture containing sulphurous and sulphuric acids resulting from the combustion of coal and other present-day fuels, produces marked deterioration.[12 13 14 15]

3. Successive changes in atmospheric temperature and relative humidity seem to exert a marked deteriorative effect,[16 17] the phenomenon most frequently observed being that of brittling following prolonged storage in warm, dry places.

4. Insects, worms, molds, and fungi also attack books in some instances.[18 19 20 21]

Since the literature indicates that the above factors influence paper preservation, it follows that the ideal library for the preservation of records would be one in which it is possible to control or eliminate the "external" deteriorating agents, and it was to this ideal library that the institutions investigated were compared.

II. METHOD OF INSPECTION

Whenever possible the library in question was visited in order to discuss with the staff the general problem of paper preservation, as well as any difficulties peculiar to the individual library. Following this conference, a general tour of the library building was undertaken, particular stress being laid upon inspection of every phase of illumination and ventilation, including heating. The condition of the stored material and of the air surrounding it was also carefully noted. In the event that a visit proved to be impossible, the information desired was obtained as far as possible by correspondence.

III. RESULTS

The results of the inspection of 13 libraries suggested by the New York Public Library are given in Table 1. The institutions included in the survey are located in the United States from the Atlantic coast to the Pacific coast and comprise both urban and country libraries.

[4] W. Herzberg, mitt, kgl. Materialprüfungsamt, Berlin Lichterfelde West., Jahrg. **25**, pp. 116–119; 1907.
[5] Aribert & Bouvier, La Papeterie, **42**, pp. 338–352; 386–392; 1920.
[6] V. Schoeller, Wochbl. Papierfabr., **43**, p. 3222 et seq.; (serial) 1912.
[7] P. Klemm, Papier Zt., **27**, pp. 961–963; 1902.
[8] C. Schwalbe, Wochbl. Papierfabr., **38**, pp. 1472–1473; 1907.
[9] B. Haas, Papierfabr., **12**, pp. 891 and 919; 1914.
[10] A. B. Hitchins, Paper, **22**, pp. 11–15; 1928.
[11] Kimberly and Hicks, B. S. Jour. Research, **6** (R. P. 307), May, 1931.
[12] Des Voeux & Owens, The Lancet, p. 47; Jan. 16, 1912.
[13] U. S. Bureau of Mines Bulletin No. 98; 1915.
[14] Mellon Institute, bulletins on smoke abatement (10 in all).
[15] Report, Chicago Assoc. Commerce, Smoke Abatement; 1915.
[16] O. Braums, Pulp Paper Mag. Can., **26**, pp. 11, 165; 1928.
[17] J. Norris, Library J., **38**, p. 16; 1913.
[18] W. R. Reinick, Am. J. Phar., **83**, p. 503; 1911.
[19] See Pierre, Compt. Rend., **164**, p. 230; 1917.
[20] V. Galippe, Compt. Rend., **169**, p. 814; 1919.
[21] Arturo Scarone, El libro y sus enemigos, Montevideo, 217 pp. 8°; 1917.

TABLE 1.—*Survey of conditions of storage in libraries*

Library	Method of dust removal	Method of heating	Method of ventilation	Method of humidification of air	Kind of light in stacks	Method of combating effects of light	Method of combating effects of actinic rays	Method of combating effects of acidic pollution of air
A [1]	Oil filter	Steam radiators	Direct fan system	Water spray	Sunlight and artificial	None		Oil filter and water spray.
B [1]	Water curtain	do	do	Water curtain [2]	Very dull artificial	Dark stacks		Water curtain.
C [1]	None	Hot air and steam radiators.	do	None	Diffused daylight and dull artificial.	Thick glass		None.
D [1]	Not in use	Steam radiators	do	Not in use	Very dull artificial	Dark stacks		Do.
E [1]	do	do	do	do	Diffused daylight and dull artificial.	Thick glass		Do.
F [3]	None	Indirect steam	Fans; plenum chamber.	None	Dull artificial	do		No information.
G [2]	do	No information	Plenum chamber exhaust.	do	No information	Art glass		None.
H [3]	do	do	Windows	do	do	None		Do.
I [1]	Oil filter	Steam radiators	Direct fan system	Water curtain	Very little diffused daylight and dull artificial.	Thick glass		Oil filter and water curtain.
J [3]	None; vacuum cleaner on shelves.	do	No information	None	No information	Glass (ground frosted).	Glass (ground and frosted).	None.
K [1]	None	Indirect steam	Fans; steam chamber	Steam chamber	Dull artificial	Dark stacks		Do.
L [3]	do	Windows	None	No information	No information	No information		Do.
M [1]	Oil filter	Hot air	Direct fan system	Automatic humidifier	Dull artificial	Dark stacks		Oil filter.

[1] Information obtained by inspection.
[2] Temperature of water thermostatically regulated.
[3] Information obtained by correspondence.