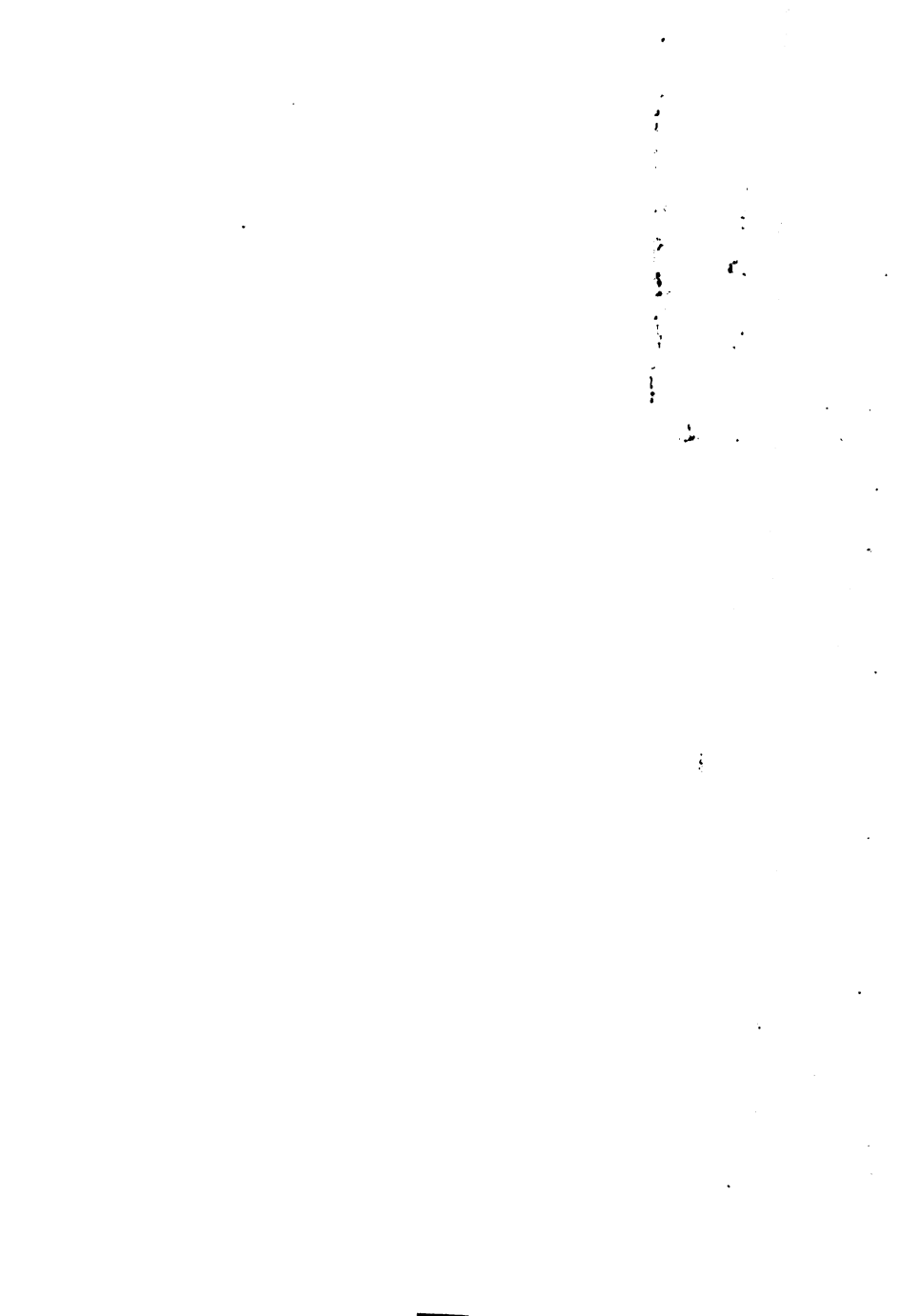


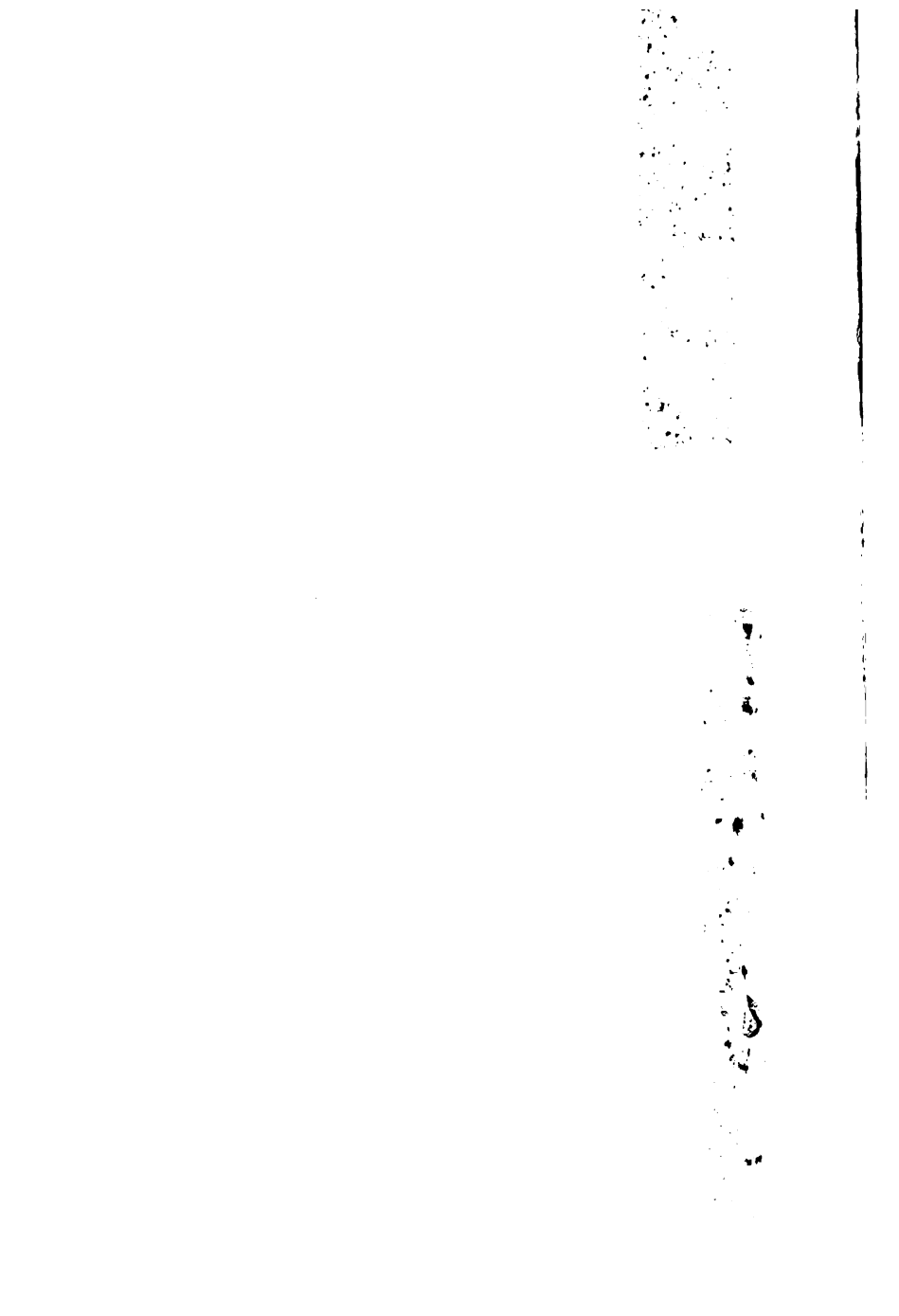
OF THE  
INDUSTRIAL SCHOOL

F. V. TENKONOHY C. F.

1908







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INDUSTRIAL SCHOOL FARM

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N

LANSING TOWNSHIP.

F. V. TENKNOBY,

1908.

We, in our thesis have endeavored  
line of, making the land a more profitable  
secondarily to cause water so held

With this object in view we to  
~~drainage~~ draining the land owned by  
known as the Industrial School Farm  
the township of Lansing, and lying  
and 15, covering approximately 300  
owned by the School, that is not used  
and play grounds is used for farming.  
At the present time there is available  
for farming and pasture; the remaining  
greater part of the year are covered  
from the rains during the summer months  
winter.

The greater portion of this land  
thereby affording ideal places for  
ponds; some of which are permanent,  
are dry for a month or two during the

placed at their disposal would be raising.

It is our problem now, to devise a scheme of drainage and thereby convert into property that will be profitable to the community and benefit at large.

After carefully looking over the country, we found two ways for directing all the water into the Grand River. One was to direct it 1 1/2 miles, the other was to direct it into the Red Cedar River, a distance of 2 1/2 miles. In making a decision in this matter we had to consider the interests involved and the benefits to be derived.

The route to the Grand River, involved considerable litigation in the courts. The City of Lansing has already reached a decision that little benefit could be derived from the sewer. Therefore we decided upon directing the water into the Red Cedar River. 1st. since the City of Lansing

## Sanitary Sewer.

Our next step, was to determine the land to be drained with suitable grades and to provide a sewer to serve as an outlet for the sewer and to empty into an open ditch. After a preliminary line of levels, and a preliminary line of levels, the land can be drained with suitable grades and also will serve as an outlet for the sewer to Ave.

The next question that naturally arises in connection with this project, is the costs and benefits. After carefully considering the project, it will cost \$16,003.47. Basing our estimate on the Grange Reports that Farm Land will be improved upon it, and that City of Chicago will increase from 25 to 35% in value. We conclude that the project will be very beneficial to the City.

Below we present our reasons for the estimate of grade and size of pipe. For the installation of this drain is presented in Follen's 'The Sewerage and Sanitation of Chicago'.



computation will carry off the

Our line from Fairview Ave  
Water and Sanitar, Sewer combia  
is given by formula in Felwell  
35. This formula inclu  
hence we assumed a future popul  
the sizes of 20, 22, 24, & 30  
Clay Sewer pipe. Below we pres  
capacities and velocities of our  
to state that our grades were de  
possible way, because we were li  
below the present bank of the Re

Size	Grade	Velocity	Dis
8	.005	1.6	
15	.001	1.60	
18	.09	1.63	
20	.09	1.62	
22	.4	4.29	
24	.3	3.83	
30	.2	3.76	1

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50% off

Total \$11897.84

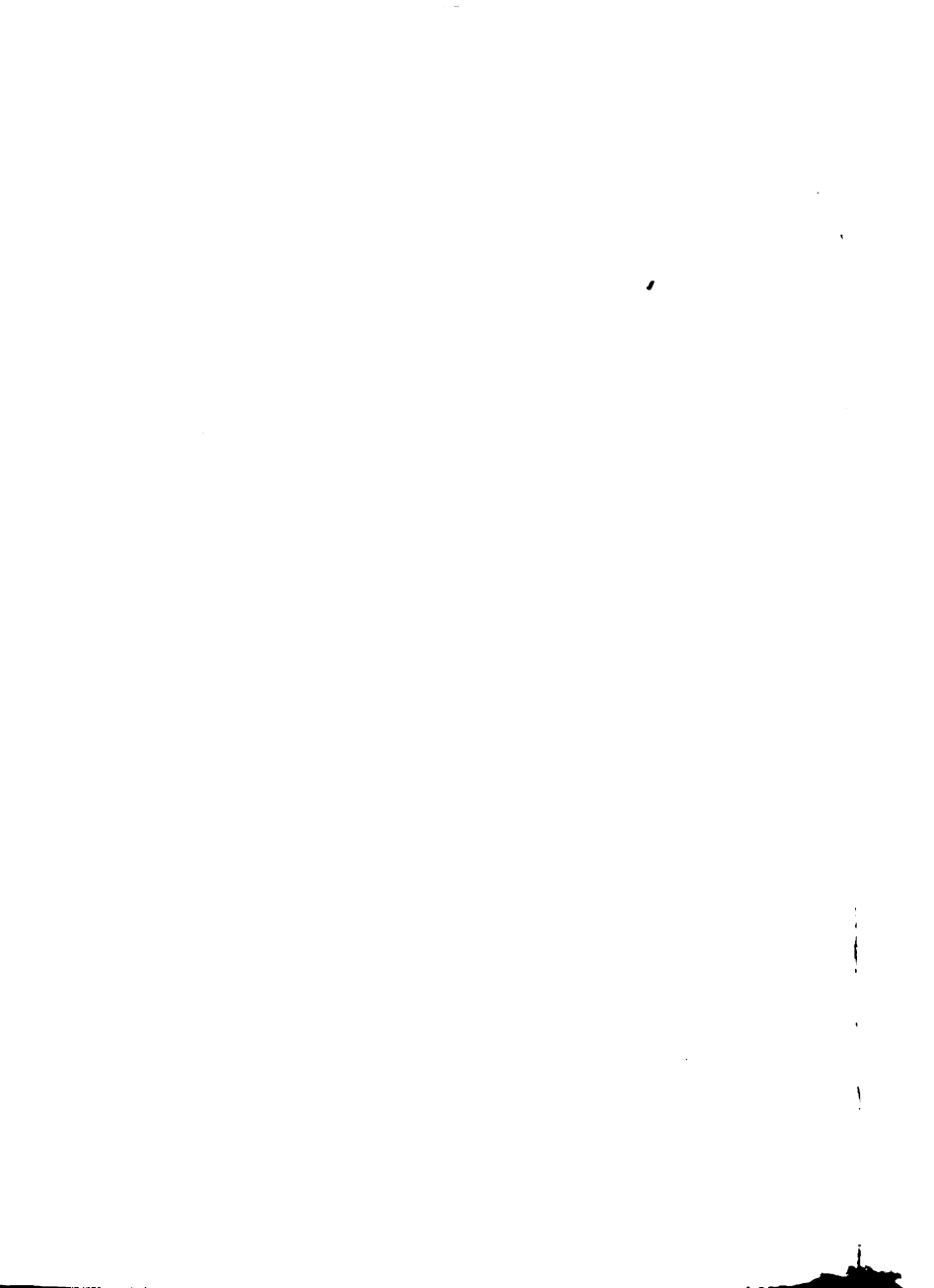
Laying of pipe.

Length	Size	Price per foot	
2250	8"	.02	
1341	15"	.05	
1361	18"	.06	
1852	20"	.0675	1
953	22"	.0725	
660	24"	.086	
3318	30"	.1283	4 7

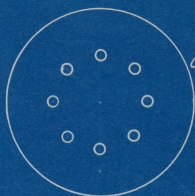
Length	Size	Excavation & back fill Total.
2250	8"	270.00
1341	15"	164.50
1361	18"	200.00
1852	20"	330.00
953	22"	153.00
660	24"	72.40
3318	30"	<u>403.00</u>
		\$1187.90

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We herein present this probl  
a complete and concise report as  
In reaching this decision our work  
at all times considered ourselves  
and for his interest.

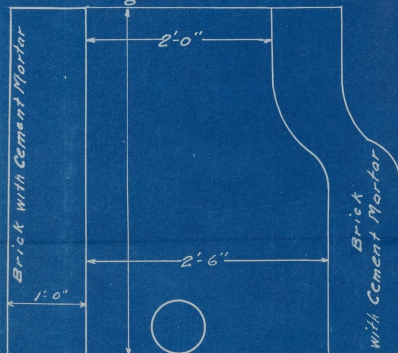


~~SECRET~~ ONLY



Cover to be of  
Cast Iron 2'-0" x 3'-3"  
perforated  
with 1" holes

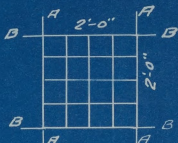
Capt to be 3'-6" x  $\frac{3}{8}$ " of Cast Iron bedded with Cement



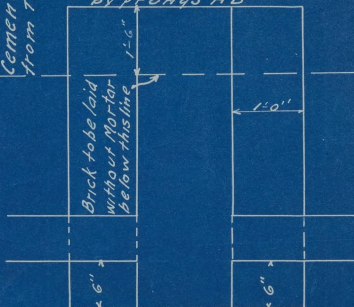
Type of Manhole for use  
on portion of Sewer from Fairview Ave  
South to Red Cedar River

Manholes to be placed every  
600 ft. and at all street inter-  
section and at all places where  
increases in size

Brick to be laid with  
Cement Mortar 1'-6"  
from top only.



Cover to be fastened  
into Masonry securely  
by process AB



Type of Manhole to be used on  
Brain Tile Line and in centre of  
Ponds.

Cross Section View of  
**MANHOLES**  
for  
**PROPOSED DRAIN**  
ON  
INDUSTRIAL SCHOOL LAND  
Scale 1" = 1'-0"  
F. V. Tenkonohy, C. E. Merwin.  
Submitted for THESIS  
May 29 1908.

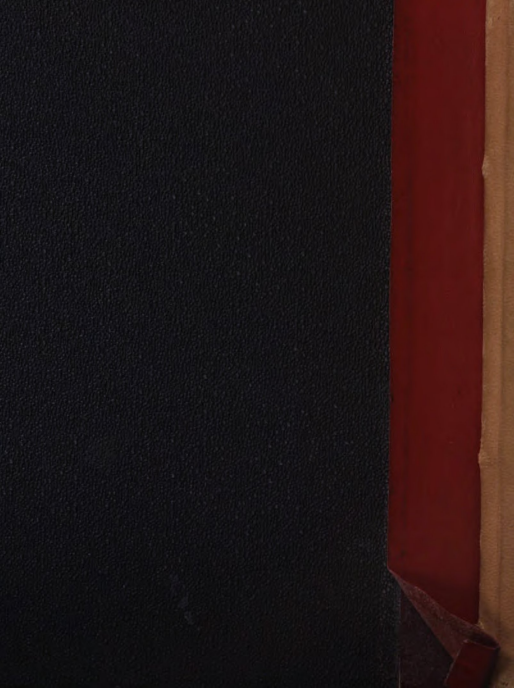












*Field Notes.*  
*for a*  
*Proposed Sewer & Drain*  
*of*  
*The Reform School Land.*  
*Submitted as Thesis.*

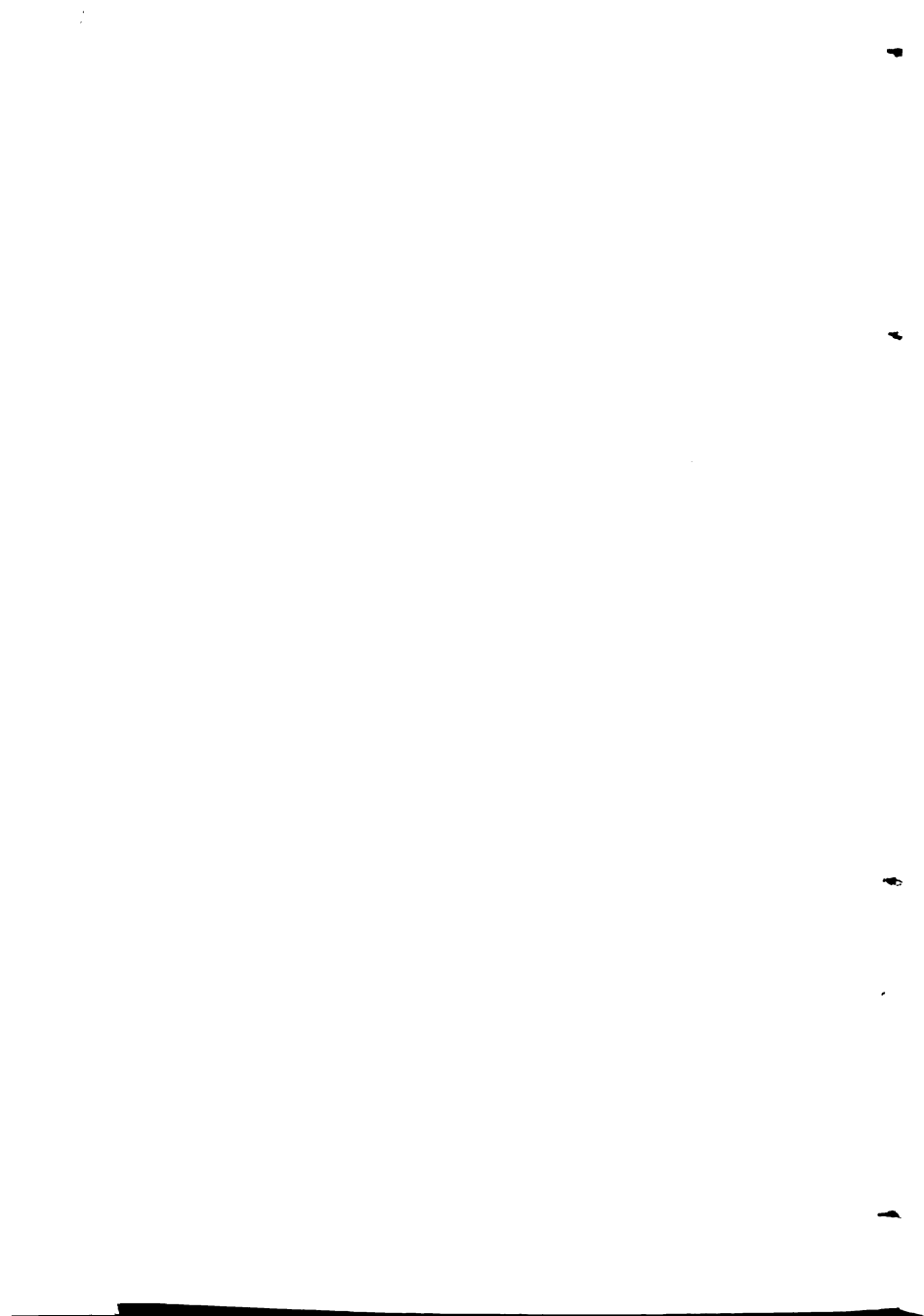
*F.K. Tenkonohy*

*G.E. Merwin.*

Journal  
of  
Field Work of 1870-1871  
C. F. Mearns

1870-1871

Journal of Field Work of 1870-1871  
C. F. Mearns



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1880

The first thing I noticed  
 when I stepped out of the  
 boat was the smell of  
 the water. It was  
 fresh and clean, but  
 there was a hint of  
 something else. I  
 couldn't quite put my  
 finger on it, but it  
 was there. I  
 looked around and  
 saw the sun glinting  
 off the water. The  
 sky was a pale blue,  
 and the water was a  
 deep, dark blue. I  
 felt a sense of peace  
 and tranquility that  
 I had never felt  
 before.

No. 1. The first thing I  
 noticed when I stepped  
 out of the boat was the  
 smell of the water. It  
 was fresh and clean, but  
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 off the water. The  
 sky was a pale blue,  
 and the water was a  
 deep, dark blue. I  
 felt a sense of peace  
 and tranquility that  
 I had never felt  
 before.

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		8.6	105.2
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		11.0	94.2
		11.2	93.0
		11.2	94.9
		11.4	95.2
		11.5	95.2
		8.8	95.1
		8.1	95.1
		2.	95.2
1.7	103.5	10.2	95.2
		0.6	95.2
		1.1	95.2
		4.2	94.7

Heater

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The heater is a  
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The heater is a

You send the heater

Send 211 N. 4th Street

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1870 - 1871

1872 - 1873

1874 - 1875

1876 - 1877

1878 - 1879

1880 - 1881

1882 - 1883

1884 - 1885

1886 - 1887

1888 - 1889



1. *Staphylococcus aureus*  
2. *Staphylococcus epidermidis*  
3. *Staphylococcus saprophyticus*  
4. *Staphylococcus carnosus*  
5. *Staphylococcus sciuri*  
6. *Staphylococcus hyicus*  
7. *Staphylococcus aureus*  
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10. *Staphylococcus aureus*

1. *Staphylococcus aureus*  
2. *Staphylococcus epidermidis*

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1911

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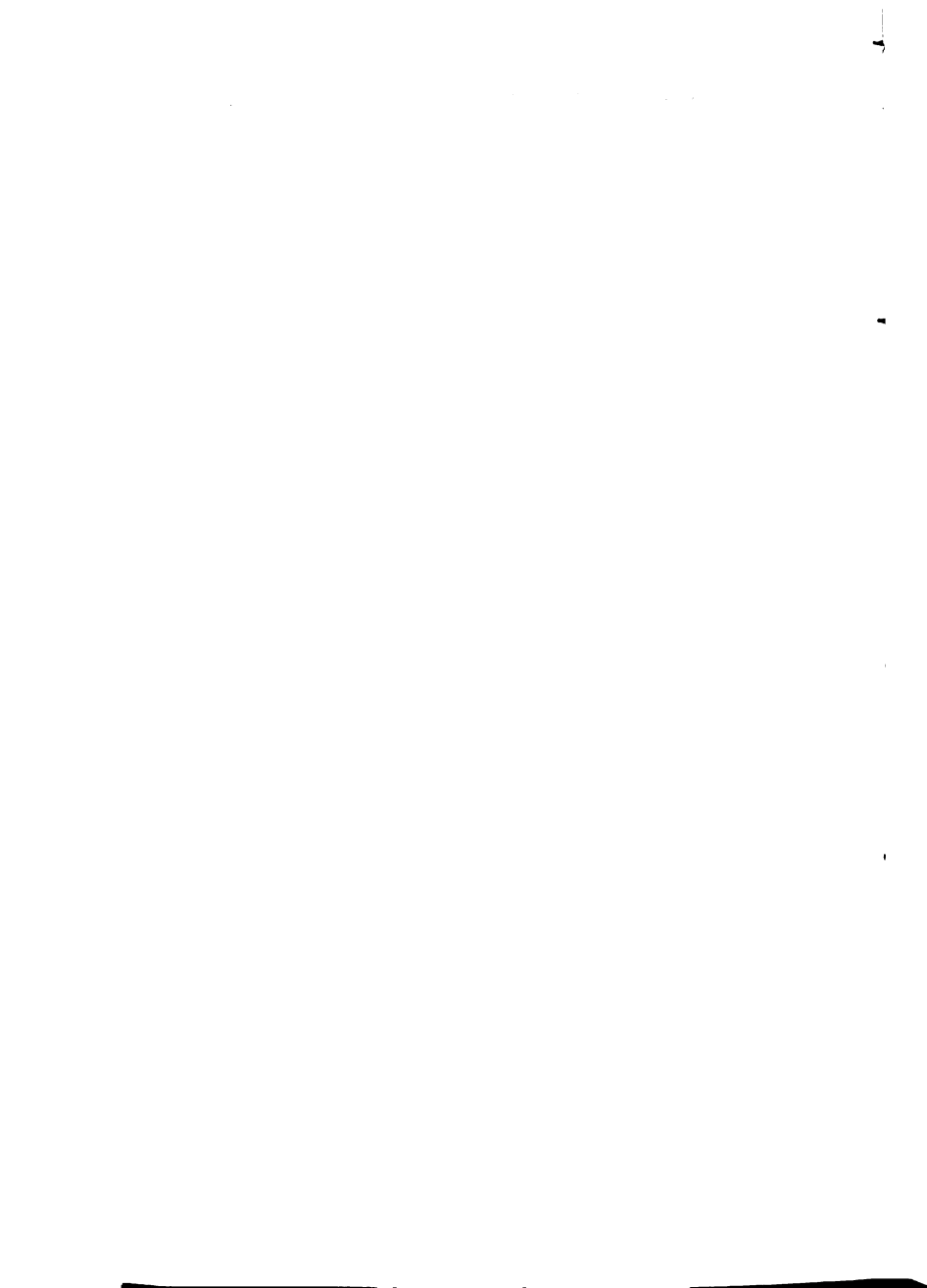
1911

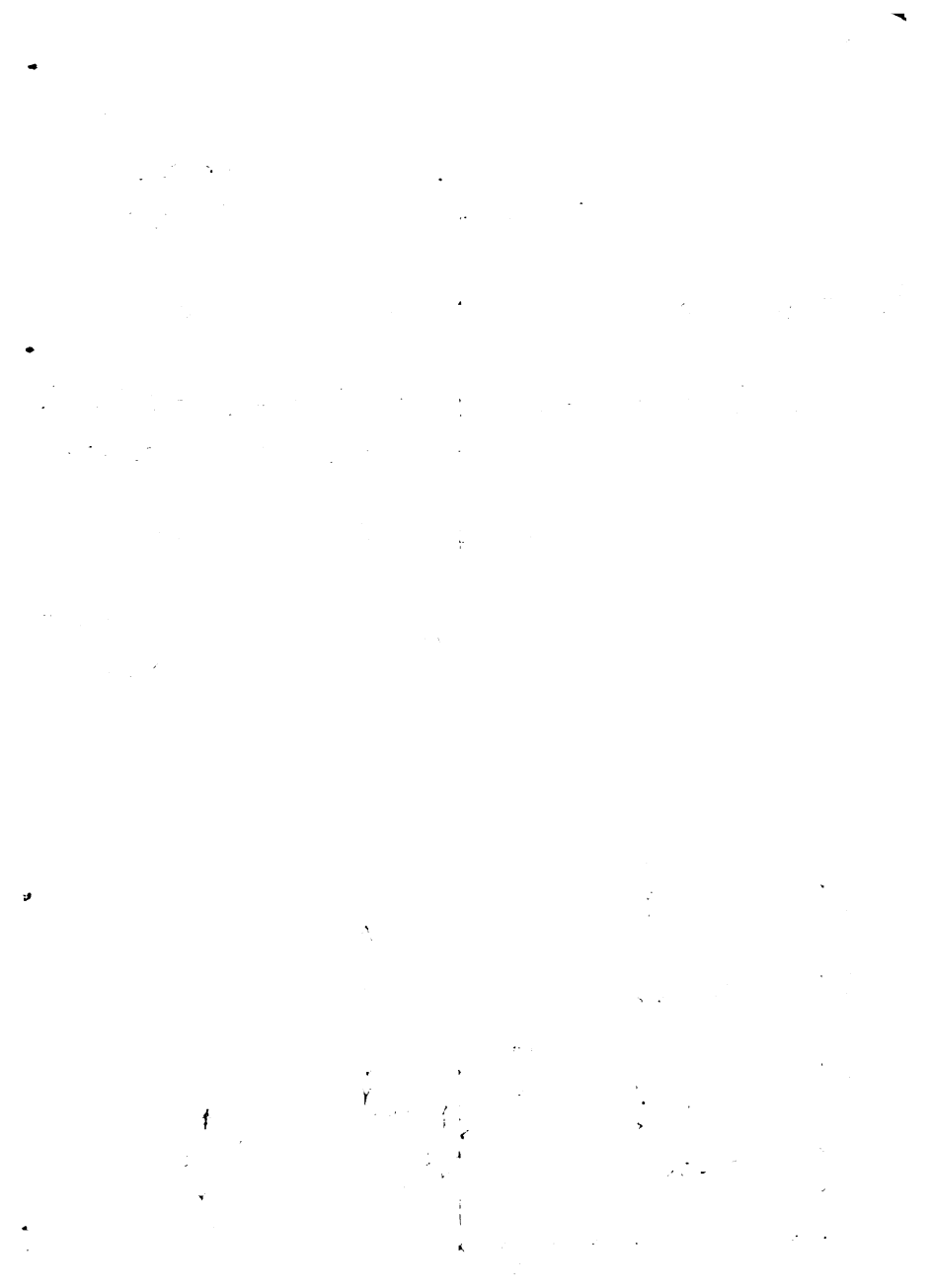
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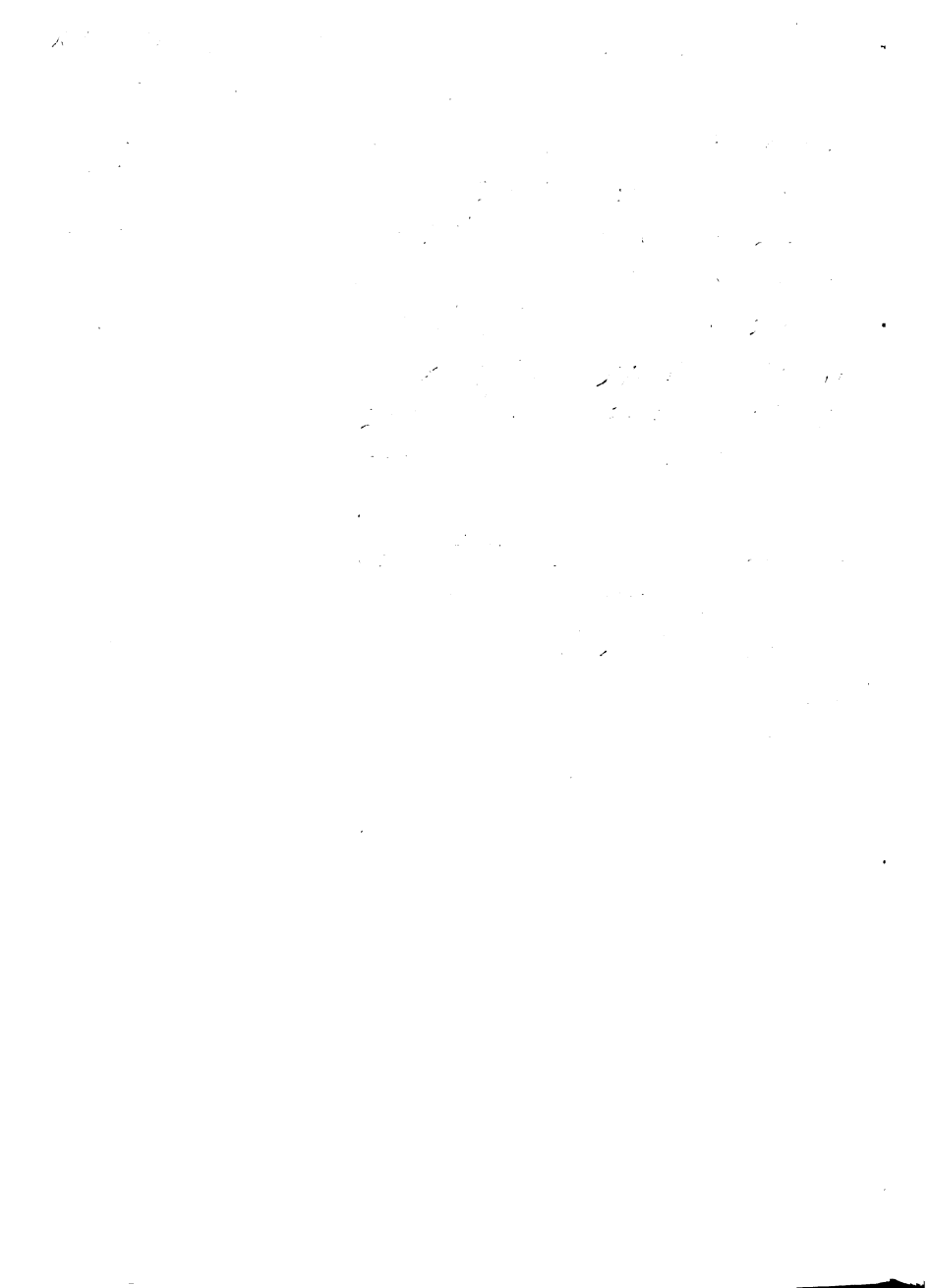












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My dear  
Mr. [Name]  
[Address]  
[City]

Dear Sir,

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Yours faithfully,  
[Signature]

[Name]  
[Address]

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1. *Chlorophyta* (Green Algae)  
 2. *Charophyta* (Charophytes)  
 3. *Embryophyta* (Land Plants)

4. *Chlorophyta* (Green Algae)  
 5. *Charophyta* (Charophytes)  
 6. *Embryophyta* (Land Plants)

7. *Chlorophyta* (Green Algae) *line*  
 8. *Charophyta* (Charophytes)

9. *Chlorophyta* (Green Algae)  
 10. *Charophyta* (Charophytes)  
 11. *Embryophyta* (Land Plants)

12. *Chlorophyta* (Green Algae)

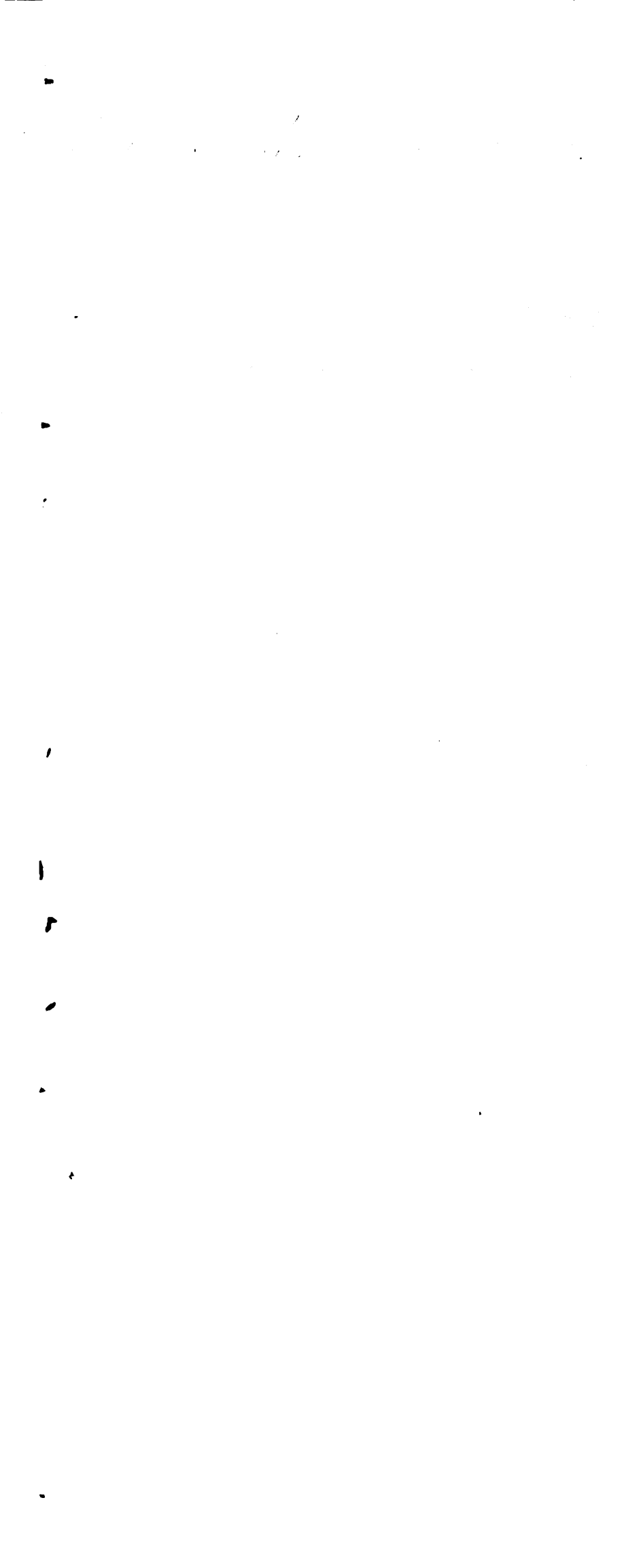
[The following text is extremely faint and largely illegible. It appears to be a list or index of items, possibly with numerical or alphabetical identifiers on the left and descriptive text on the right. Some faint words and numbers are visible, such as '1', '2', '3', '4', '5', '6', '7', '8', '9', '10', '11', '12', '13', '14', '15', '16', '17', '18', '19', '20', '21', '22', '23', '24', '25', '26', '27', '28', '29', '30', '31', '32', '33', '34', '35', '36', '37', '38', '39', '40', '41', '42', '43', '44', '45', '46', '47', '48', '49', '50', '51', '52', '53', '54', '55', '56', '57', '58', '59', '60', '61', '62', '63', '64', '65', '66', '67', '68', '69', '70', '71', '72', '73', '74', '75', '76', '77', '78', '79', '80', '81', '82', '83', '84', '85', '86', '87', '88', '89', '90', '91', '92', '93', '94', '95', '96', '97', '98', '99', '100'.]











Year	Month	Day	Temperature	Humidity	Wind	Clouds	Notes
1912	Jan	1	60	70	SE	Partly	
1912	Jan	2	65	75	SE	Partly	
1912	Jan	3	68	78	SE	Partly	
1912	Jan	4	70	80	SE	Partly	
1912	Jan	5	72	82	SE	Partly	
1912	Jan	6	75	85	SE	Partly	
1912	Jan	7	78	88	SE	Partly	
1912	Jan	8	80	90	SE	Partly	
1912	Jan	9	82	92	SE	Partly	
1912	Jan	10	85	95	SE	Partly	
1912	Jan	11	88	98	SE	Partly	
1912	Jan	12	90	100	SE	Partly	
1912	Jan	13	92	100	SE	Partly	
1912	Jan	14	95	100	SE	Partly	
1912	Jan	15	98	100	SE	Partly	
1912	Jan	16	100	100	SE	Partly	
1912	Jan	17	100	100	SE	Partly	
1912	Jan	18	100	100	SE	Partly	
1912	Jan	19	100	100	SE	Partly	
1912	Jan	20	100	100	SE	Partly	
1912	Jan	21	100	100	SE	Partly	
1912	Jan	22	100	100	SE	Partly	
1912	Jan	23	100	100	SE	Partly	
1912	Jan	24	100	100	SE	Partly	
1912	Jan	25	100	100	SE	Partly	
1912	Jan	26	100	100	SE	Partly	
1912	Jan	27	100	100	SE	Partly	
1912	Jan	28	100	100	SE	Partly	
1912	Jan	29	100	100	SE	Partly	
1912	Jan	30	100	100	SE	Partly	
1912	Jan	31	100	100	SE	Partly	

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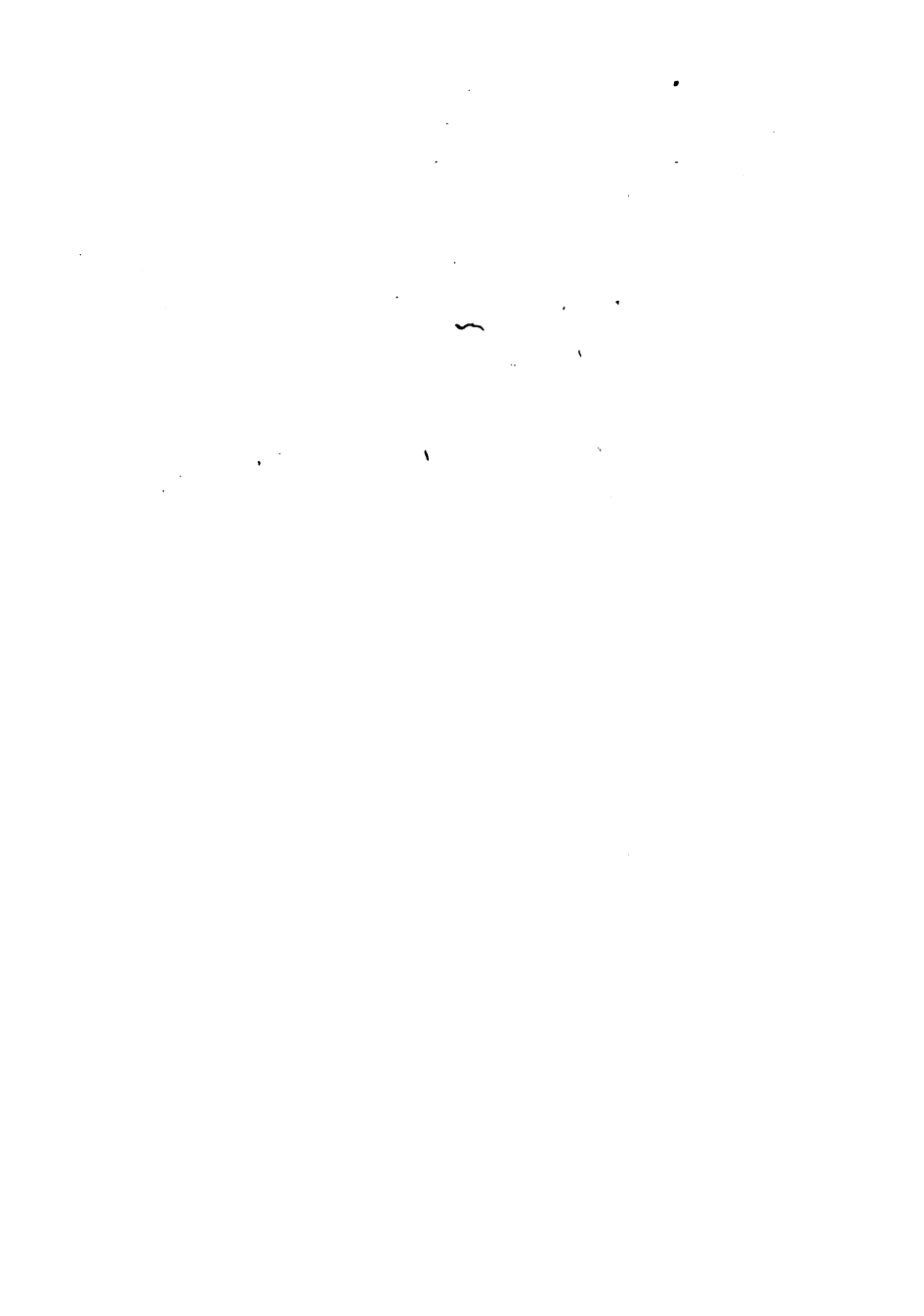
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1900

*[Faint, illegible handwriting]*



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Notes

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**SUPPLEMENTARY  
MATERIAL**