

gale in gusts till about 840. force 8. 5th, deep purplish haze, tipped with crimson, all along WH at 7 a.m. 7th, the same again. 8th, at 12.50 p.m. after rain over, the clouds began breaking (wind SE, 2), it seemed to begin blowing suddenly at the elevation of the clouds, though the wind on surface of the earth was comparatively light. A deep roaring sound was audible, resembling a storm at a distance among the tops of the pine trees, the clouds began to swirl and surge and toss over and over and to break into fragments in a very remarkable manner, and the wind immediately shifted from SE to SW. 28th, blew a gale after 10 p.m. during night. Falling stars observed 10th, 11th (very many), and 13th. On 14th, a very fine meteor at 9.20 p.m., passed across Z rapidly, illuminating the atmosphere like a flash of lightning, and leaving a long streak of light which faded away gradually and very slowly. 15th, halo round moon. 21st, partial halo round sun. Rain on 4th, 6th, 8th, 22nd, 23rd, 24th. Snow on 9th, 10th, 12th, 22nd, 24th, 25th, 26th, 27th, 28th.

SIMCOE.—Rain on 3rd and 4th. On 5th, solar halo at 1 p.m. 8th, rain with south wind began about 3 a.m., ended 9.30 a.m., when wind changed to SW and WSW with velocity 6 or 7; clouds broke up and passed rapidly in same direction; occasionally during day clear sky; occasional light showers; thermometer fell suddenly during night after the storm, which continued till after midnight. Light showers with scarcely any intermission from 2 p.m. 22nd till 1 p.m. 24th. On 27th, aurora in the form of a northern twilight from 9 to 9.30 p.m. Snow on 9th, 11th, 16th, 19th, 24th, 25th, 26th.

STRATFORD.—On 10th, mill pond frozen. 16th, snow from 6 a.m. to 6 p.m., depth 2 inches. On 22nd, rain began at 8 p.m., and ended 23rd at 9 p.m., depth .6429 inches. Violent storms of wind 8th and 9th. Storms of wind also on 10th, 11th, 15th, 16th. On 27th, violent storm of wind and snow began at 11 a.m., and ended during night between 28th and 29th; good sleighing 27th. Rain on 3rd, 4th, 6th, 8th, 22nd, 23rd. Snow on 8th, 9th, 10th, 11th, 12th, 16th, 19th, 24th, 25th, 26th, 27th, 28th. Fog on 23rd. A lower indication of barometer than is noted in the table above was observed here on Sunday 23rd, at 9 p.m., viz., 27.945.

WINDSOR.—Month remarkable for cloudiness. Rain on 3rd and 22nd. Snow on 13th, 15th, 16th, 19th, 24th, 26th, 27th. Storms of wind on 3rd, 4th, 8th, 10th, 11th, 12th, 15th.

V. Papers on Scientific subjects.

1. HOW TO VENTILATE SCHOOL HOUSES.

All the windows of a school room should be hung with pulleys, in order that they may be easily raised or lowered. If windows and doors are skilfully used, a tolerably good degree of ventilation can be secured. The ventilation will be much more perfect if the arrangement be adopted which is indicated in the designs representing the internal arrangements of a school-house. In this arrangement, the smoke-flue starts from the cellar and runs out at the roof; and starting at the floor of the school-room, a ventiduct is carried up in front of it, and separated from it by a sheet-iron partition. In this way the smoke in the flue will heat, and of course expand, the air in the ventiduct, and make it rise in a strong current, while the air in the ventiduct will not interfere with the draft in the flue. The smoke-flue should be about twenty-four inches by nine inches, and the ventiduct the same. The stove or furnace may have two pipes, one running to each smoke-flue. The ventiduct should have two registers, one at the ceiling and the other at the floor, though during the school sessions—unless the room be too warm—the upper one should be closed. Impure air is heavier than other air, and will generally find egress from near the floor.

If a stove must be placed in the room, it should be surrounded with a tin casing made to extend from the floor to about one foot above the top of the stove. There should be a door in the casing for putting in fuel; and a trunk for the conveyance of fresh air should start outside of the building, run under the floor, and communicate directly with the stove. This arrangement will distribute the heat much better about the room, and avoid those cold currents of air which always, in a room heated by an ordinary stove, sweep along the floor from the bottom of doors and windows, and openings in the floor or walls.—*Wickersham's School Economy.*

2. METRIC SYSTEM OF WEIGHTS AND MEASURES.

In July last the Metric system of weights and measures was formally adopted by the United States Congress, and a law passed, authorizing it to be used throughout the various States. One section of the Act declares that the following shall be the various lawful "Measures," of the system to be substituted for the old measures:

MEASURES OF LENGTH.

Metric denominations and values.		Equivalents in denominations in use.
Myrameter	10,000 metres.	6.2137 miles.
Kilometer	1,000 metres.	0.62137 mile, or 3280 ft. and 10 in.
Hectometer	100 metres.	328 feet and 1 inch.
Dekameter	10 metres.	393.7 inches.
Meter	1 metre.	39.37 inches.
Decimeter	1-10 of a metre.	3.937 inches.
Centimeter	1-100 of a meter.	0.3937 inches.
Millimeter	1-1000 of a meter.	0.394 inches.

MEASURES OF SURFACE.

Metric denominations and values.		Equivalents in denominations in use.
Hectare	10,000 sq. metres.	2.471 acres.
Are	100 sq. metres.	119.6 square yards.
Centare	1 sq. metre.	1550 square inches.

MEASURES OF CAPACITY.

Metric denominations and values.		Equivalents in denominations in use.		
Names.	No. of liters.	Cubic Measure.	Dry Measure.	Liquid or Wine Measure.
Kiloliter or stere	1,000	1 cubic meter.	1.308 cu. yards.	264.17 gallons.
Hectoliter	100	1-10 cubic meter.	2 bu., 3.35 pks.	26.417 gallons.
Dekaliter	10	10 cu. decimeters.	9.08 quarts.	2.6417 galls.
Liter	1	1 cu. decimeter.	0.908 quarts.	1.0567 qts.
Deciliter	1-10	1-10 cu. decimeter.	6.1022 cu. inch.	0.845 cils.
Centiliter	1-100	10 cu. centimeters.	6.6102 cu. inch.	0.338 fl. ozs.
Milliliter	1-1000	1 cu. centimeter.	0.061 cu. inch.	0.27 fl. drs.

WEIGHTS.

Metric denominations and values.		Equivalents in denominations in use.	
Names.	Number of grains.	Weight of what quantity of water at maximum density.	Avoirdupois Weight.
Miller or Tonneau	1,000,000	1 cubic meter	2204.6 pounds.
Quintal	100,000	1 hectoliter	230.46 pounds.
Myriagram	10,000	10 liters	22.046 pounds.
Kilogram or kilo.	1,000	1 liter	2.2046 pounds.
Hectogram	100	1 deciliter	3.5274 ounces.
Dekagram	10	10 cubic centimeters	0.3527 ounces.
Gram	1	1 cubic centimeter	15.432 grains.
Decigram	1-10	1-10 of a cu. centim'tr	1.5432 grains.
Centigram	1-100	10 cubic millimeters	0.1543 grains.
Milligram	1-1000	1 cubic millimeter	0.0154 grains.

The Boards of Trade of Milwaukee and Albany have resolved to adopt this system. The change from the old system of grain measurement to the new standard is simple. Suppose it to take effect on a day when the market quotations are as follows:

No. 1 wheat (per bush., 60 lbs.) \$2 06 | No. 2 oats, (per bush., 32) .. \$0 43
No. 1 corn (per bush., 56 lbs.) .. 0 80 | No. 2 barley per bush. 48 lbs. 0 68

To find the equivalent price per cental annex two ciphers to the price per bushel, and divide this amount by the number indicating the pounds required of the given grain to make a bushel: the quotient will be the price per cental. Thus amended, the above table would read (adopting the usual rule with the last figure):

No. 1 wheat, per cental.... \$3 43 | No. 2 oats, per cental..... \$1 34
No. 1 corn, per cental..... 1 43 | No. 2 barley per cental..... 1 42

The Chicago Board of Trade have resolved that after March 1st, 1867—other Boards of Trade concurring,—all their transactions in grain, seeds, etc., shall be conducted in centals instead of bushels.—*Illinois Teacher.*

3. VARIOUS SCIENTIFIC NOTES.

China has within her boundaries what is called a Tallow-Tree, the product of which has become a great article of commerce. For the most part, this tree is found in the northern part, and yields an article which furnishes an excellent light, free from smoke or smell. It is prepared from the seeds. The tree grows rapidly and luxuriantly, yielding fuel in abundance, and its leaves being used for coloring purposes. In India, it has lately been introduced. Trees, grown from the seed, and only eight years old, are six feet in circumference.

The French are experimenting with oxygen gas for illuminating purposes. The objection, at first, was its costliness, the cost being one dollar per cubic foot. Recent experiments show that it can be furnished at two cents per foot. It is obtained from the reaction of silica upon sulphate of lime. By directing a jet oxygen through an ordinary gas-burner, the illuminating power of the gas is increased, thereby saving in expense 30 or 40 per cent. It is conducive to health, because other hurtful gases are consumed.

The story that the upas-tree of the island of Java exhales a poison-