

Tailor-Made Weather for Homes Now an Actuality

Slight Change Converts Heating Plant From One-Season Affair Into Year-Round Air Conditioning System.

Here's How Much Heat Your Body Generates From a Single Dinner

"Blame that unfortunate habit of eating, and not only the weather, for the discomfort you feel in summer!" says the Holland Institute of Thermology of Holland, Mich.

Eating is like fueling a heating plant. Heat is generated in both cases. But the heat values of foods and of fuels are measured by different standards. The calory is the heat unit for foods. The British Thermal Unit is the measure which heating engineers apply to fuels. Thus, one cubic foot of manufactured gas contains 550 B. T. U.'s, and one pound of coal from 8,000 to 16,000 B. T. U.'s.

Here is a typical hot weather dinner menu, showing the amount of heat it generates in the body:

	Calories
Cold boiled ham	200
Escalloped potatoes	100
Vegetable salad (tomato, cucumber, lettuce, with french dressing)	200
Roll and butter	200
Ice cream	300
Frosted cake	200
Black coffee with sugar	100
Total	1,300

One calory equals nearly four B. T. U.'s. So 1,300 calories is equivalent to the heat that would result from burning more than nine cubic feet of gas. This illustrates why, as the Holland Institute of Thermology explains, excessive heat must be carried away if the body-temperature is not to work up to fever pitch in hot weather.

When the heat wave is at its hottest, when the baby's skin is red with rash and its stomach is upset, when grandmother and grandfather are gasping for breath with high blood pressure and rapid pulses, and when every hour that mother must spend in the kitchen seems a torment—don't just curse the weather man, advises the Holland Institute of Thermology of Holland, Mich. Potential relief waits in the basement of nearly every home, ready to spread the comfort of coolness.

For, just as modern air conditioning science has made it possible to keep the movie theater "70 degrees cool" while the temperature outdoors is above 90, so it is possible to keep the dwelling house a refuge from outdoors heat during the hottest weeks of summer.

Only, whereas the cooling of public buildings and other big structures requires complicated and expensive machinery, home cooling can be accomplished at a minimum of expense with slight changes in the same equipment that supplies heat in winter.

To understand why this is so, the engineers of the Institute of Thermology explain, it is necessary to know something about how excessive heat gets into the human body and the body gets rid of it.

Human Body Like Furnace. In the first place, the body is just like a furnace. Eating is just like burning up fuel. The food is oxidized in the body tissues, producing energy.

But the body is like an engine, too. Just as the boiler and pistons of a locomotive convert heat energy into



In Ancient Days the Punkah Gave Relief From the Heat.

mechanical energy to keep the wheels going round, so the body converts part of the energy in its food into muscular energy for the performance of work.

Most of us, though, don't turn all the heat energy of the food we eat into muscular energy consumed in exertion. Much of it remains in the form of heat. Physiology tells us that the internal temperature of the healthy body is 98.6 degrees. When, for any reason, it gets above, that

point, the condition is called fever. Why aren't we always "burning up in a fever?" For, of course, we generate far more heat than is required for the work we do and to keep the body at its normal temperature. The reason is that the human body has the remarkable faculty of controlling its own temperature, just as a thermostat automatically controls the temperature of a house, school or other building.

Body Throws Off Heat. Thermostats are instruments placed on the walls of rooms, each one so adjusted that, when the temperature falls to a certain point, an electric current is sent to a motor down in the basement. This then operates a simple mechanism to open the draft door of the heating plant. When the temperature of the room upstairs gets back to the required point, the mechanism shuts off the draft, in closely similar manner, the Holland Institute of Thermology explains, the body controls its own temperature. This is done through four safety valves.

One of these is radiation. The body just throws off its excessive heat to surrounding objects. But during extreme hot weather, this safety valve won't work. For then the surrounding objects are just as warm as the body itself; so they can't absorb any of its heat.

Conduction is the second, but least important, outlet for excessive heat. Conducted heat is the kind that passes from one thing to another by direct contact, just as electricity is conducted along a copper wire. Conducted heat is a small factor in air conditioning engineering because ordinarily only a small part of our body surfaces—just the soles of our feet when we stand—are in contact with other objects or substances.

Heat Carried Off by Air. But one of the most important safety valves is the third, convection. Convection heat is conveyed by the atmosphere. If the air is cooler than your body, it brushes some of the heat off your body and carries it away. But if the air is warmer than your body, it carries heat to you and helps to warm you. If body temperature and air temperature are the same, there is no heat exchange between them.

So there are conditions in which these three safety valves can't operate to release the excessive heat generated in the body. These are the extreme summer conditions which we call "stifling" and "sweltering," when all the objects surrounding the body are too warm to absorb its radiant heat and the air is too warm to convey any of its heat away. What can happen to serve as an emergency valve?

As a matter of fact, what does happen? The body perspires, and the sweat is evaporated. Now, one of the basic principles of physics is that evaporation causes coolness. So perspiration really is one of the important heat regulating functions of the body. It is one of the most efficient safety valves for the escape of excessive warmth. Anything that promotes the evaporation of perspiration is a great aid to comfort.

Humidity Important Factor.

Of course, the relative humidity of the air has much to do with this. When the relative humidity is high, when the weather is "muggy" as well as warm, that is, when it isn't the heat; it's the humidity, the air contains so much moisture obtained from other sources that it can't absorb much heat from the skin.

That's the condition when the humidity is high and the air is stagnant. But suppose that the air isn't stagnant, but is moving past and around the body with a lively velocity. Whenever a particle of moisture is taken from the body, it will be borne away quickly and more air will come along to repeat the process. So the air's movement will give us relief by increasing evaporation.

Air motion, moreover, is the chief thing that aids convection. Of course, when the air is hot and moving rapidly, it conveys heat to the body rather than from it. But conditions seldom are so severe that this occurs. Usually, air motion, with a temperature even slightly below that of the body, is helpful.

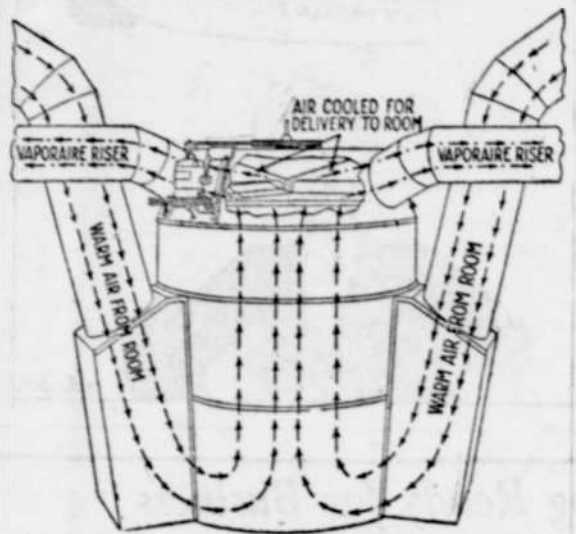
So we see that radiation, convection and evaporation are the body's three great safety valves, that conduction is a minor one, and that air motion is a factor that influences two

of them. All present-day air conditioning engineering, the Holland Institute of Thermology states, is based on these facts of physiology.

Moving Air Brings Coolness. In fact, one of the basic principles of this branch of science, as given in the engineers' "Guide Book" is that "Air motion makes any moderate condition feel cooler." One of the technical men who aided in the twelve years of research that ascertained these facts put it this way: "Air motion exerts a cooling effect on the human body in atmospheres where the temperature is less than that of the body."

This principle is applied in many industrial plants to improve working conditions. In two English textile factories through which the air was driven at moderate velocity, the production during hot weather was found to be 12 per cent higher than in two other similar mills that were unventilated. On Atlantic liners, the temperature in engine rooms has actually been reduced from 150 to 70 degrees by means of air motion.

Similar effects have been obtained in American industries. Forced air blasts have been introduced to blow air over the heads of the workers.



Electrified Propeller Unit Speeds the Velocity of Air Through Heating Plant to Produce Summer Cooling and Enhance Winter Heating.

Such a system greatly lowered the temperature and improved the summer-time efficiency in a tube plant in Pittsburgh. Its use also has been effective in overcoming adverse heat conditions in bottle works and tinplate factories.

Heating System Used for Cooling. If mere air motion proves such a mighty comfort producer in industrial buildings, why can't it also be used for the same purpose in homes?

It can, the engineers of the Holland Institute reply; and that is precisely what has been done by the leaders of the warm air heating industry. They have converted the home heating system from a one-season affair into an all-year-round air conditioning system, which circulates cooling breezes through the home during summer as well as currents of warmth in the winter.

Taking the modern "vaporator" heating system as the basis of their operations, these air conditioning experts built into it a noiseless electrified propeller unit, of which the function is to speed up the circulation of air through the home to a much higher velocity than the ordinary warm air circulating plant maintains.

These propellers can be run in summer as well as in winter. During hot weather they keep up a steady motion of air through the room between the grille which in winter is used to introduce warm air and the ventilating grille which is used in cold weather to draw cool air down to the central heating plant. This means that in every room there is a spot of maximum comfort near the grille. But the velocity of the air as discharged through this opening carries clear across the room until it is finally drawn down to the basement through the ventilating grille.

In winter, too, these propeller units maintain a high velocity of warm air. This improves circulation, shortens the time needed to warm up the house on cold mornings, makes it possible to heat even the rooms farthest from the central heating plant and promotes heating efficiency. It eliminates the costly necessity of "forcing" the heating plant and decreases heat losses from the heater and its pipes into the basement.

Two types of "vaporator" systems that contribute summer coolness and winter warmth to the home have been devised, the Holland Institute of Thermology reports. One is a complete system intended to be installed in new homes or in others where the heating equipment is obsolete. But also the propeller units can be added to already installed warm air circulating plants if they are in good condition. This is a simple and inexpensive remodeling operation. And furthermore, engineering tests have established that the cost of operating either system for cooling in hot weather is less than a cent an hour.

FARM REMINDERS

The first exclusive turkey show on the Pacific coast will be held at Oakland, Ore., December 13 and 14, under the direction of J. C. Leedy, county agricultural agent.

Many farmers use their spare time during the winter in building or repairing fences and cleaning up te weeds and trash accumulated along old ones. It is a wise use of spare hours, says the Oregon Experiment station.

"I" ON THE TELEPHONE

An enterprising man once decided to check the use of various words used during telephone conversations and discovered that the word "I" was used almost four thousand times out of a total wordage of less than 80,000. The word "you" was the next most frequent, while "the" and "a" followed in the order named—although the tiny "a" was used only a trifle over half as much as the all-important "I."

This does not agree with printed English where "the," "of," and "to," "a," "in," "that," "it," and "is" all lead "I." In fact, out of 80,000 words in printed English, the word "I" appeared less than a thousand times, while "the" appeared almost 6,000.

The "I's" have it—on the telephone, at least.

Oregon State News

The extension to the Astoria telephone building is rapidly nearing completion.

Widening of the John Day Highway between Vale and Jamieson has been completed.

The six-apartment court at Spring and Wall streets, Klamath Falls, has changed hands.

A branch of the Prudential Insurance Company has opened for business in Medford.

The Swanson Feed Store has opened for business at Aumsville in the Merrill building.

The confectionery and pool hall has opened in Wapinita in the building formerly occupied by Matt Busch.

BOYS ORGANIZE CAMERA CLUB

The Camera Club is a new organization of the School. Its purpose is to take all the school pictures of interest to the students. The work is to be done altogether by the members, under the direction of Mr. Metzler, their advisor.

The Club holds meetings once besides any extra meetings necessary to carry on the work.

This year's members are: Paul Shellenberger, President; Maurice Manning, Herbert Mason, Chester Beach, and Lebert Wilson.

—From the Beaverton Hummer

Beaverton Review

Issued Every Friday at Beaverton, Oregon, THE REVIEW PUBLISHING CO.

Entered as second class matter December 9, 1922, at the postoffice at Beaverton, Oregon, under the Act of March 3, 1879.

J. H. Hulett .. Business Manager



M. E. CHURCH

Sunday School, 10 a.m.
Preaching Services, 11 a.m., 8 p.m.
Epworth League, 7:15 p.m.
Everyone cordially invited to the Church with the friendly welcome.
—B. Waddington, Pastor

St. Cecilia Church

Sunday Masses — 7:40 and 10 a.m.
Weekday Mass 8:20 a.m. and 7:30 p.m.
Rev. J. M. O'Neill

Nazarene Church

10:00 a.m., Sunday School
11:00 a.m., Morning Service.
6:30 p.m., Young People's Meeting.
7:30 p.m., Evangelical service.
Everyone is invited.
—Roy L. Nolt, Pastor.

Church of Christ

Rev. G. W. Springer, minister.
Next Sunday is the annual all day meeting of the church membership. Each family will bring a basket dinner. We are looking forward to the good fellowship that we will have together at that time. There will be reports given by the heads of the different departments of the church. We will have a roll call of the church membership, and the new church officers will be installed.

Next Sunday morning Mr. Springer will speak on the subject of "Conscience." Next Sunday evening and the Sunday following the

A GOOD RESOLUTION

With the advent of the New Year there is no resolution that will do you so much good as it will to resolve to buy only standard foods such as the ones we advertise, during 1930. We don't try to talk you into believing that they are better. All we ask is a fair trial and we know that you will be convinced.

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subject for the evening will be "The Second Coming of Christ."

Kinton Church

Regular preaching services will be held at the Kinton church Sunday evening at 7:45, to which all are invited. There will be a regular session of the Bible school at 10:00 in the morning, at which time the new officers and teachers of the school will have charge. It will also be promotion day for some of the scholars, with appropriate exercises.

At the close of the session, a New Year's basket dinner will be served, and all those attending are requested to bring well filled baskets of food, with dishes for serving. It is desired that the parents of the children attending Bible school be present; and everyone in the community is invited.

Bethel Church

9:45 a. m. The Sunday School, R. C. Doty, Superintendent.
11:00 a. m. Morning Worship. "The Task of a Believer." Communion Service and Reception of Members. Music by Chorus and Soloists, Willis Cady, Director.
6:30 p. m. Young People's Meetings.

7:30 p. m. Evening Worship. "When Religion Inspires." Quartet and Instrumental Music.
Church Annual Meeting Friday night, Jan. 3rd.
Twenty-eight members have been received into the church recently and more will join next Sunday.
T. Arthur Dungan, Minister

NOTICE TO CREDITORS

In the County Court of the State of Oregon for Washington County. In the Matter of the Estate of William B. Gillingham, Deceased.
NOTICE is hereby given that the undersigned has been appointed the executrix of the estate of William B. Gillingham, deceased, by the County Court of the State of Oregon for Washington County, and has duly qualified. All persons having claims against said estate are hereby notified to present the same, duly verified as by law required, to the undersigned at her residence on Franklin Avenue in the City of Beaverton, Washington County, Oregon, within six (6) months from the date hereof. Dated and first published December 20, 1929.

December 20, 1929.
Rhoda M. Gillingham, Executrix of the Estate of William B. Gillingham, Deceased.
McCamant & Thompson
Lyndon L. Myers
Attorneys for Executrix Advc3-7

WANTED and FOR SALE

Wanted—Apples and vegetables. Potatoes, or anything you can spare to cheer the needy at Christmas. Will call for same. Phone 6902. C. E. Hedge, chairman relief committee, Beaverton Chamber of Commerce.

Good, pure milk promotes health, especially at this time of year. Drink lots of it. Beaverton Sunrise Dairy, A. Camenzind, proprietor. Adv. c 15-tf

Any girl in need of a friend, write Adjutant Miss E. H. Allemann, The Salvation Army White Shield home, 565 Mayfair Avenue, Portland, Ore.

Wanted—Dressmaking, by Mrs. Jessie Husalage at her residence at Tigard; quarter mile from McDonalds store. Prices reasonable. Address Tigard, Or. Route 1. c-4

Lost—Large German Police dog. Answers to name of "Duke." Liberal reward. Caroline Carlson, Route 1. Adv p4

For Sale—Work horse, cheap. Harold Whitley, Huber, Ore., four blocks south of the railroad. Advc 45

Beaverton Rebekah Lodge No. 248 meets first and third Tuesday evenings at 7:30 P. M. in the I. O. O. F. Hall. Mrs. Marjorie Lewis, Secretary. Mrs. Lulu Clifton, N. G. p-tf

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We are busy this week escorting visitors through our new building, of which we feel we are justly proud. We have a modern, up-to-date vault door of which we are inviting inspection, and we hope that you will use the attached coupon to register your guess on the weight of the door. The one guessing the nearest to the actual weight will be presented with \$25.00 in cash.

THIS CONTEST CLOSES JANUARY 7 At 3 p.m.

My guess is that the weight of the vault door is pounds
Name
R. F. D. or Street
City

BANK OF BEAVERTON

Oregon State News

The Rainier Highway near Vernonia is being surveyed.

Mills addition in Klamath Falls shows rapid development.

Construction is underway on the Ponderosa Hotel building at Burns.

Highway through Central Point will be improved in the near future. Plans are underway for the construction of a reservoir at Maupin.

The First National Bank of Hood River has installed fire equipment.

The Gervais Market Road near Mt. Angel, has been opened to traffic.

Over 500 acres near Hermiston will be planted to Jerusalem artichokes.

The Ashland Lodge of Elks has extensively improved the lodge rooms.

Mrs. C. J. Stevens was in Hillsboro on business Thursday.

Mrs. M. C. Hendricks of Portland, a former resident of Beaverton, was visiting in town Friday.

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