

WATER FREEZING PROBLEM SOLVED

No Reason Why Machines should
Not Be Run in Any
Weather.

THE COOLING OF AN AUTO.

Chug-Wagon Expert, Coker F. Clark-
son, Tells All About It and How
To Overcome Difficulty.

(By Coker F. Clarkson, A. L. A. M.)

The cold weather is on, and the freezing proposition is to the front again. There is certainly no reason why a water-cooled machine should not be run in any weather, but many have been told that the freezing process is so bad, for some years, practical tests have been made, determining what mixture can be used in the cooling system of an automobile, to prevent freezing and at the same time not injure any part.

Various mixtures, glycerine and alcohol have been considered. A wood alcohol was chosen for the first experiment because there was the slightest chance of its injuring any machine. A set of laboratory freezing experiments were made to determine what percentages of water and alcohol would freeze under artificial conditions. The results showed that it is possible to use alcohol and water mixed to resist almost any degree of cold.

Then the question of whether alcohol would separate from the water, and waste away so fast as to make the expense prohibitive, was taken up. It was found that considerable alcohol might be lost on mild days. A water-cooled automobile was taken and seven gallons of water-alcohol mixture, 15 per cent alcohol, put in the cooling system. By connecting to the top of the radiator a bottle, into which a pipe leads from above the water level. It was found that except under extreme conditions, such as on a mild day, allowing the engine to run without a fan while the machine was standing still, no vapor at all arose.

This led to the thought that it might be possible to close the cooling system entirely in cold weather, obviating any chance of loss by boiling away. A pressure gauge connected to a cooling system was closed, indicated a pressure of six pounds under very severe conditions. This means that there are some machines that can be run without loss of alcohol and water from the cooling system.

It is also possible that many machines that have relief valves can be run with a closed system. The safest way to find this out in an inexpensive manner is to take a small bit of rubber tubing, fitting the end of the blow-off pipe, and connect it to the top of the radiator, and slip the other end over the pipe lightly. Any pressure that could injure the machine at all would blow the tubing off and prevent injury.

PERCENTAGES.

When the temperature was as low as 15 degrees Fahrenheit below zero, a mixture of water and 25 per cent (by volume) of alcohol, resisted freezing perfectly, even when the car was left outdoors all night.

With the temperature around 50 or 60 degrees Fahrenheit, this mixture (33 per cent alcohol) will freeze at 10 degrees below zero.

It is not probable that the temperature will drop below 40 degrees below zero before the first of December, in which case 15 per cent of alcohol in the mixture is enough.

As the temperatures and zero temperatures are likely, nothing less than 25 per cent of alcohol is safe. The best protection is to use glycerine or not the percentage of alcohol in your cooling system is diminishing as time passes and the glycerine is lost. Moving up, say, a 20 per cent solution and a 10 per cent solution of water and alcohol, and putting them in bottles for keeping, gives a standard comparison by the nose.

GLYCERINE AND ALCOHOL.

The combined use of glycerine and alcohol mixed with water solves the question for both hot days and cold days; the boiling point of glycerine, being higher than that of water, will balance the low boiling point of alcohol, so that the boiling point of the mixture will be reasonably high.

As the percentage of glycerine required to meet a given temperature is much larger than the required percentage of alcohol, there is a matter probably of comparative cost, a mixture of alcohol and glycerine for use in the water is better. Although glycerine slowly but surely destroys rubber tubing connections.

A mixture of water and glycerine (20 per cent glycerine) will freeze at about 15 degrees Fahrenheit. To be safe at 10 degrees below zero, and 25 per cent of glycerine in the water is necessary. Twenty-five per cent of half alcohol and half glycerine, added to water, will resist freezing at eight degrees Fahrenheit. Thirty per cent of half alcohol and half glycerine, added to water, will resist freezing at practically 10 degrees below zero.

When the half-and-half mixture is used, the best results will be obtained by adding a small quantity of wood alcohol to the mixture, to keep the mixture from becoming too thick, and to keep the freezing temperature. The glycerine will remain in the mixture, without loss, on mild days, and will be met in winter in this climate. Some machines will stand all alcohol, that is, mixed with

Standing of City Bowlers.

Club.	Games.	Av.	St.	Sp.	B.	E.
1 Pierpont	16	157.31	77	60	19	12
2 J. Quinn	16	152.10	67	54	19	14
3 P. Quinn	16	151.10	67	54	19	14
4 Hemmer	16	151.10	67	54	19	14
5 McBrayne	16	151.10	67	54	19	14
6 Sam. Editz	16	151.10	67	54	19	14
7 Ekdhall	16	151.10	67	54	19	14
8 D. Levene	16	151.10	67	54	19	14
9 C. C. M. I.	16	151.10	67	54	19	14
10 Raymond	16	151.10	67	54	19	14
11 Talamantes	16	151.10	67	54	19	14
12 S. Williams	16	151.10	67	54	19	14
13 J. Burton	16	151.10	67	54	19	14
14 J. Hart	16	151.10	67	54	19	14
15 D. Margetts	16	151.10	67	54	19	14
16 D. Margetts	16	151.10	67	54	19	14
17 Lovell	16	151.10	67	54	19	14
18 Pierson	16	151.10	67	54	19	14
19 G. Danley	16	151.10	67	54	19	14
20 Collins	16	151.10	67	54	19	14
21 Lohr	16	151.10	67	54	19	14
22 Snow	16	151.10	67	54	19	14

water; others will use and glycerine must be used to keep up the boiling point.

SALTS AND OIL.

An eminent authority has said that it is inadvisable to use in automobile cooling systems, any of the chemical compounds frequently suggested. And the extensive use of oil with which there has been considerable experimentation and use in other lines, as in the case of stationary engines, is also inadvisable at the present stage of development.

COACH WALKER LEAVES.

Departure from Agricultural College to Continue Study of Law.

Fred Walker, former coach of the Aggies, and a well known athlete, is speeding on his way to Chicago, where he will study law at the University of that city. While coach of the A. C. he accomplished a great deal of good and brought the Aggies to the top of the football list. He was also a member of the Aggies first team. In addition to being a first class coach, Walker proved to be a good basketball player, and there is a possibility that he will be secured to pitch for Salt Lake next season.

ATHLETIC MIX UP IS EXPLAINED

Colorado University Makes a Statement as to Cause of Trouble With
The Denver Aggregation.

The recent flurry created in Colorado athletic circles over the severance of relations between the University of Colorado and the U. of Denver, is now explained in a statement just issued in which the Denver U. is charged with professionalizing the game. The statement in the nature of a report made by Dr. Ekeley of the Boulder school, who was appointed to make an investigation of the report contains the following:

"I went to University park and interviewed Dr. Howe of the college of liberal arts, under the impression that Dr. Howe was still on the D. U. board of control. The dean stated he was no longer on the board, nor was he in touch with athletes in any way. The board of trustees of the university having placed the entire athletic control in the hands of a new committee consisting mainly of members of the alumni."

"Dr. Ekeley questioned the dean concerning Hutzell, a member of the D. U. team. Dr. Howe replied that Hutzell was formerly a student at Notre Dame university in Indiana. When asked if Hutzell had entered the university after presenting the proper credits the dean answered he was not sure. Dr. Ekeley then asked him to refer to the records of the college of liberal arts, in which Hutzell is registered. On doing so the dean found the records stated 'Credits will be sent later.'"

"His reply to the question as to whether any credits had been received by the college since the record was entered, was: 'No, there is no record of any, but the athletic committee may have received them.' Dr. Ekeley then asked the students entering the college of liberal arts of D. U. present their entrance records to the college or to the athletic board? What the dean answered Dr. Ekeley does not remember."

"At this point on being asked for data of the records concerning the rest of the players who attended the college of liberal arts, Dr. Howe refused to furnish any further information, saying he had made a mistake in showing the record of Hutzell and he tried to involve himself in difficulties with the athletic board. He admitted, however, that he had about half of the records of the college of liberal arts did not have their entrance credits."

"Dean Howe also admitted he had never been consulted by the athletic board concerning the entrance credits of football men."

"Dr. Howe refusing to discuss the subject further, Dr. Ekeley went to the city of Denver, where he interviewed the athletic board, and stated to him that he wished to place in his hands certain data concerning the eligibility of one of the D. U. players. He also told Mr. Edwards of the result of his interview with Dr. Howe, stating that Hutzell was not a student of the U. of Denver, and that the U. of Denver was not a member of the U. S. A. A. A. association."

"We were ready to carry out our contract and play the game of Nov. 21, no matter what they put against us, but we asked them as a sign of good faith to look more carefully into the eligibility of their players. They were, however, fully satisfied with the matter as it stood."

Besides the facts brought up by the visit of Dr. Ekeley to University park at Denver our board was convinced, and the fact that D. U. players are receiving at least their board and room free of charge from the university. We considered it impossible to attend to continue the relation with a institution whose authorities assumed such an attitude. We therefore advise Denver of the facts at once."

"The action of the board was formally approved by the deans of different schools of the University of Colorado before it was sent to the Denver board."

(Signed) GEORGE MORLIN,
Chairman, Board of Control of Athletics, University of Colorado.
Nov. 25, 1908.

HARVARD-YALE GAMES.

Following is a list of the football games between Yale and Harvard from the inauguration of the game:

1875-Yale, 1 goal; Harvard, 2 touchdowns.

1876-Yale, 1 goal; Harvard, 4 safeties.

1877-Yale, 1 goal; Harvard, 1 touchdown; Harvard, 4.

1878-Yale, 4 safeties; Harvard, 4 safeties (a tie score).

1879-Yale, 1 goal, 2 touchdowns; Harvard, 2 safeties.

1880-Yale, 4 goals; Harvard, 1 touchdown, 1 safety.

1881-Yale, 6 goals, 4 touchdowns; Harvard, 0.

1882-No game.

1883-Yale, 5 goals; Harvard, 1 touchdown.

1884-Yale, 3 goals 1 safety; Harvard, 1 goal.

1885-No game.

1886-Yale, 1 goal; Harvard, 0.

1887-Harvard, 2 goals; Yale, 1 goal.

1888-Yale, 1 goal, 1 touchdown; Harvard, 0.

1889-Yale, 1 goal; Harvard, 0.

1890-Yale, 1 goal; Harvard, 4.

1891-No game.

1892-Yale, 0; Harvard, 0.

1893-Harvard, 11; Yale, 0.

1894-Yale, 0; Harvard, 0.

1895-Yale, 28; Harvard, 0.

1896-Yale, 12; Harvard, 0.

1897-Yale, 6; Harvard, 0.

1898-Yale, 2; Harvard, 0.

1899-Yale, 12; Harvard, 0.

1900-Harvard, 4; Yale, 0.

REGULAR NOTIONS.

Madrid, Nov. 28.—Public matches between English and French negro boxers held Saturday night under the auspices of the Bilbao Sporting Club, were hotly criticized in the senate yesterday, when

anxious to carry out the wishes of her husband in every respect. She will act as soon as the estate of her husband is settled. Mr. Yerkes desired that his wife should control the gift to the city, but in any event this collection of paintings was to become a public benefaction. If the insurance company forecloses, only the property and buildings on it will be lost to the city."

A CHECK FROM CARNEGIE.

Payette, Ind., Nov. 28.—President William A. Shanklin of Upper Iowa university today received a check from Andrew Carnegie for \$30,000 in payment of Mr. Carnegie's pledge to give that amount when \$150,000 additional endowment of the university should have been completed.

A PECULIAR WRENCH

of the foot or ankle may produce a very serious sprain. A sprain is more painful than a break. In sprains, cuts, burns and scalds Ballard's Snow Liniment is the best thing to use. Relieves the pain instantly, reduces swelling, is a perfect antiseptic and heals rapidly. Price 25c, 50c and \$1.00. Sold by Z. C. M. I. Drug Dept., 112 and 114 South Main St.

CHRISTMAS NEWS BOYS.

Boys who intend canvassing for subscribers for the Christmas News changed order blanks at the distributor's window. Here is an easy way to make some Holiday money. Come at once. Do not delay.

Dress Suits for rent. Daniels, the Tailor, 57 W. 2nd St.

JURY EXONERATES
TELEGRAPH OPERATOR

Helena, Mont., Nov. 28.—A special to the Independent from Thompson, Mont., says:

"A verdict of not guilty was brought in at 6 o'clock last evening by the jury in the case of the telegraph operator, A. Mitchell, the telegraph operator charged with criminal negligence, alleged to have resulted in the fatal wreck at Olive last September, when passenger train No. 5 and freight train No. 65 crashed together on the Northern Pacific. Mitchell has been in jail here since the time of the wreck and his trial in the district court has been postponed several times. The jury was out but two hours, the final arguments being completed yesterday afternoon. Mitchell was in charge of the office at Perma at the time of the wreck. The trial of Daniel Keely of Missoula is set for this week."

TEA

Three quarters of the tea in this country is not very good.

The fraction is not too high.

Your grocer returns your money if you don't like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Like Schilling's Best; we pay him.

Never varying—
Not made by guess work—
Nearest to perfection—

Husler's Flour

JAPAN

Japan the land of flowers
the land of sunshine, the land
of beauty, the land of good
tea;

HEWLETT'S TEA

is a Japan tea, pure and un-
colored, delicious and invigor-
ating; worth twice the price
it is sold for.



The
Cheerful
Blaze
The Best of Coal Always
in Stock

Call us when you get cold.
Bell, 955. Ind., 137.

What a Change! Odd Suits and Dresses.

Made new by our superior
cleaning and pressing system.
We call for them today, you
can wear them for your next ap-
pointment.
Call for our wagon.

Bell 2607, Ind. 2083.

Chicago Cleaning Co

37 P. O. PLACE.

House-Cleaning

Season is here.
Nothing so
Sanitary,
Refreshing and
Economical as

Muresco

Wall Finish and
M and P Paint

We also carry Wall Paper Clean-
er and Furniture Polish.

SALT LAKE GLASS & PAINT COMPANY

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 28 So. Main St.

No. 2