

National Temperance Study Course

General Directions

INTERMEDIATE-SENIOR LESSON

October 19th—Lesson Two

ALCOHOL—WHAT IT IS AND HOW IT IS PRODUCED

From very early times, so early that there is no record of when the discovery was made, people knew that the juices of fruit if exposed to the air would undergo a change in taste. We call it fermentation. The discovery was probably made quite accidentally, and in different parts of the world independently of one another. A picking of grapes or other fruit may have been placed in a container and those at the bottom may have been squashed by the weight of those on top. That would cause the juice to ooze out, and be left in the container when the fruit was removed.

Somebody drank this fermented fruit juice and found that it had a strange effect on him. Those who drank enough of it acted in an unusual way. Their friends thought they were possessed by a spirit, a common explanation for unusual events. They concluded from this that a spirit had possessed the wine. We still use the term spirits in connection with liquor.

It wasn't until the 1830's that it was discovered what caused the fruit juices to ferment. A microscope was constructed, powerful enough to enable scientists to detect spores of yeast floating about in the air adhering to particles of dust. It is this yeast which by uniting with the sugar in fruit juices causes the chemical change which we call fermentation.

A similar change takes place in the case of grain which has got wet, though in that case the change involves two steps. A kernel of grain contains starch, and this starch must first be changed to sugar before the yeast can unite with it. Dampness causes the kernels to sprout, and this sprouting has two results. In the first place, it cracks the shell of the grain open, and in the second place, it produces a substance called malt. This malt acts in a chemical way on the starch in the grain, turning it to sugar. Then the yeast gets in contact with the sugar and fermentation takes place.

In the case of both the fruit juice and the grain juice, the product which results from the fermentation contains alcohol. But the maximum alcoholic content of the liquid produced is 14 to 15 per cent. When the concentration of alcohol gets close to 15 per cent the yeast plants which produce the fermentation are destroyed by the alcohol they have produced, so no further fermentation takes place. In Biblical times and for several centuries thereafter this was the "strongest alcoholic beverage available". It was a beverage of this strength that the writers of the Bible were referring to when they wrote "Wine is a mocker, strong drink is raging; and whosoever is deceived thereby is not wise; and "Who hath woe? who hath sorrow? who hath contentions? who hath bubbling? who hath wounds without cause? who hath redness of eyes? They that tarry long at the wine."

Now, in our day the whole process is speeded up artificially. The production of beverage alcohol has become a big and profitable business. Yeast is produced artificially in large quantities and added to prepared grain, and the chemical change is started which produces alcohol and a gas called carbon dioxide. (It is this gas bubbling to the surface that produces the

foam on some alcoholic beverages.)

Another development of comparatively recent times has helped to revolutionize the production of beverages containing alcohol—the discovery of the process of distillation. Students make use of this process early in their high school work in science through an experiment for obtaining fresh water from salt water. The process involves heating the solution until the water boils and changes into steam. The steam is made to pass through a tube to a bottle or container of some sort in which it is collected and cooled. The cooling changes the steam or water vapour back into water, a process called condensation. The salt is left in the original jar.

A similar process is used in the production of alcohol today. You may have discovered, if alcohol has been used as anti-freeze in your family's motor car, that alcohol boils at a fairly low temperature. Whereas water boils at 212 degrees Fahrenheit, alcohol boils at a temperature of 173 degrees, and thus changes to a vapour. This fact is utilized in obtaining pure alcohol from fermented liquids. The heat is kept just slightly above 173 degrees so that only the alcohol is evaporated. The vapour is then collected and condensed by cooling. It may be added to other liquids to give them any desired alcoholic strength. In this manner wines are "fortified" until they have perhaps twice the alcoholic content produced by fermentation alone. This is one of the big differences between the production of alcoholic beverages in modern as compared with ancient times.

Various alcoholic drinks differ in the percentage of alcohol which they contain. The alcoholic content may be measured either in terms of volume or weight. Measured in terms of volume, whiskey is said to contain 40 to 45 per cent pure alcohol, gin 52 per cent, brandy 53 per cent.

In connection with beverage alcohol we come across the term "proof spirits." It is said that a liquor is a certain "per cent proof." This expression has an interesting history. It goes back to the time before we had any official standards such as we have today. How could the purchaser of liquor be sure of its alcoholic content, that his drink wasn't mostly water? Well, to satisfy himself, he worked out a clever test or proof. He would wet gunpowder with the liquor, and then try to burn. If it would burn, that was "proof" that the liquor contained a large percentage of alcohol. That percentage became standardized so that 100 per cent proof spirits contains one-half alcohol in volume.

Alcohol, of course, is not used solely in making beverages. It has extensive and legitimate uses in industry. One of its familiar uses is as an anti-freeze in the radiators of motor cars, because it will freeze only at a temperature much lower than the freezing point of water. In the paints, varnishes and lacquers which we use around our homes, alcohol is an important ingredient. It is used in the manufacture of photographic films, and in plastics which are coming into such wide use. In some European countries alcohol is mixed with gasoline, to conserve the supply of gas. It is sometimes said that alcohol and gasoline don't mix, but reference is not made to its presence in the gas tank but in the blood stream of the driver. There it is decidedly out of place.

In case of industrial alcohol, in order to make it unfit for drink-

ing, other chemical products are added. Benzine and acetone are commonly used for this purpose. When this is done the resulting mixture is labelled denatured alcohol.

For Discussion

To what extent is the drinking today due to the pressure of a big business to sell its products?

Questions

1. How does the production of alcoholic beverages differ today from their production in Bible times?
2. In what ways is alcohol used in industry today?

JUNIOR LESSON

Lesson Two—October 19th

JACK AND JANE LEARN ABOUT A. A.

(By Ruth Lucas Smith)

The family were all sitting around after supper. It was the custom for them to have some family fun together. Tonight it was Jane's turn to choose or suggest the game.

"Let's guess initials tonight," said Jane.

"All right," said everyone. "Jane, get a pencil and a paper to keep score."

"Here it is," said Jane. "Five points when you guess right and 25 points to end the game. The initials can stand for people we know or for organizations. Let's start!"

After some easily-guessed initials, like C.O.D., C.B.C., C.G.I.T., C.P.R., Dad proposed a harder one, "A.A."

"Athletic Association," said Jack, after thinking a bit.

"Not again," said Jack. "Oh yes," said Jane, "A.A. stands for something else, too."

"All right," said Dad, "use it in a sentence."

"Mr. and Mrs. Brown are going to an A.A. meeting, so Mary has to stay home and look after the children on Friday. Mother can't answer because she was in on this before," said Jane. "It's up to Dad or Jack. Let's give ten points for this hard one and make it the last."

"The highest score still wins. That will make your brother feel better," said Mother. "Do you remember last year, Mr. Brown

came home early one night because he had lost his job. He had been drinking too much. The A.A. has helped him to stop drinking alcoholic beverages such as beer, wine, whiskey and cocktails," explained Mother.

"Well, I think I get the next five points," said Dad, "or is it ten?"

"Ten if you're right, Dad," said Jane. "It's Alcoholics Anonymous," said Dad.

"O.K., Dad, you get ten points," Jack said, "but I still win. My score is twenty and the time is up; only tell us something more about Alcoholics Anonymous."

"People who drink alcoholic beverages and just can't leave them alone are called alcoholics. It becomes a disease," said Dad.

"But every one who drinks doesn't become an alcoholic, does he?" asked Jack.

"No," said Dad. "They tell us that among drinkers, about one in fifteen becomes an alcoholic. The question is 'How are you to know if you are going to be that one? No one can tell us that yet. But there is one way of being sure that you're not going to be that one.'"

"How can you answer that one," said Jack. "Don't start drinking," said Jane.

"Yes, that's right," said Dad. "Alcoholics Anonymous—but what does the Anonymous mean?" asked Jane.

"Well, when nobody knows who wrote a poem or story it is said to be anonymous. They call this group anonymous because they want to keep their names unknown and just do the things they need to do to get help for themselves and to help others. They have what they call the 'Twelve Steps' to guide them. I can't remember them all, but some of the important ones I know. First, you must admit that you need help to overcome the drinking habit—that you cannot overcome it alone. A second is to admit that the help of a Higher Power than yourself is needed, and to give yourself to God. Another point is that the best way to keep yourself from drinking is to help someone else who has the same problem as you have, and to confess your faults or sins to one another. It is really based on the Sermon on the Mount and the letters of James in the New Testament."

"Perhaps Mother will read us a few verses for our Bible reading tonight."

"Why, yes," said Mother. "The fifth chapter of James beginning at the 13th verse to the 16th from Moffatt's translation is good—Is anyone of you in trouble? Let him pray. Is anyone thriving? Let him sing praise. Is anyone ill? Let him summon the presbyters of the Church, and let them pray over him, anointing him with oil in the name of the Lord; the prayer of faith will restore the sick man, and the Lord will raise him up; even the sins he has committed will be forgiven him. So confess your sins to one another and pray for one another, that you may be healed; the prayers of the righteous have a powerful effect!"

"Yes, that is so," said Mother. "The A.A. is practical. It is Christianity at work and it really works if you work at it. At present it seems to be the only real cure for the alcoholic," said Dad.

"No," said Dad. "The 'No's,' Dad," said Jane. "Mary only told me the name—not really what it stands for; she didn't seem to want to talk about it. We're going over to her house on Saturday afternoon and we'll have a longer time to talk together."

"It is getting late. I think you young people had better do whatever homework you have while Dad and I do the dishes," said Mother. "Then we can all listen to the radio programme that you enjoy so much before bedtime."

Questions

1. How will you make certain that you will never become an alcoholic?
2. Name two things that members of an A.A. group must do.

Lorne Valley and Vicinity

Mr. and Mrs. Lloyd MacDonald and Mr. Wilbur MacDonald were business visitors to Montague on Saturday October 18th.

Mr. and Mrs. Malcolm MacLeod are spending an enjoyable visit in Toronto, Ontario. They are guests of their son and daughter-in-law, Mr. and Mrs. Palmer MacLeod. En route home they plan to stop at Montreal to visit their daughters, Dorothy, Mrs. Morley Markell, and Miss Teresa MacLeod.

The Experts Say

By Kay Rex

"Trick or treat," the little guy across the street will soon be gutting from behind his big false face. And proba... his mother will be forever grateful if you limit the sweets put into his Halloween basket.

Apples make good "shell-out" material. Cookies too, find favor among the small fry. Here's a recipe for unbaked cookies that taste almost like candy:

Ingredients: two eggs (well beaten); one-half pound chopped dates; one cup granulated sugar; one teaspoon vanilla; pinch of salt. Put a tablespoon of butter into heavy frying-pan, add eggs, dates, sugar, vanilla and salt. Cook slowly, stirring continually, until done (about 10 to 15 minutes). Remove and cool. Add three cups rice flakes, shape in balls and roll in fine coconut.

Sweet Stuff

If the Halloween handout must be candy then home-made fudge is excellent.

From the Jubilee guilds of Newfoundland and Labrador comes this recipe for chocolate fudge: two tablespoons butter; two cups sugar; three-quarters cup top milk or thin cream; two squares chocolate or five tablespoons cocoa; one tablespoon butter; two tablespoons light corn syrup; one teaspoon vanilla or one-quarter teaspoon cinnamon.

Cook sugar, milk, chocolate and corn syrup slowly until chocolate melts, stirring gently. Boil without stirring until mixture forms a soft ball when tried in cold water.

Remove from fire, add butter and let stand until cool. Add flavoring and nuts or 12 marshmallows. Beat until creamy.

A less expensive fudge from the Newfoundland recipe book is this one for brown sugar candy:

Boil two pounds light brown sugar, two-thirds cup milk, one table spoon butter or margarine until the mixture forms a soft ball when dropped in cold water. Remove from fire and beat until creamy.

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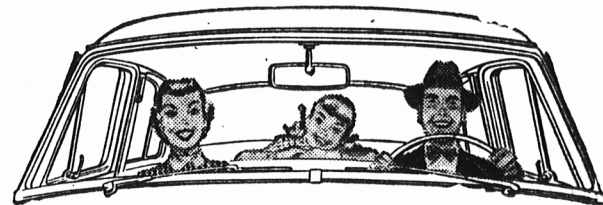
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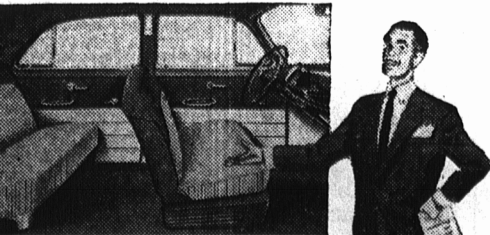
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DAILY CROSSWORD

- ACROSS
- 1. Very small particle
- 5. Nobleman
- 9. Danger
- 12. City (Algeria)
- 13. High sear robber
- 14. Ignited
- 15. Fruit of the pine
- 16. Tantalum (sym.)
- 17. Plant of crowfoot family
- 19. God of pleasure
- 20. Music note
- 21. Hall!
- 22. Search for
- 23. Malt beverage
- 24. A tin
- 25. Actors in a play
- 27. Swabbing instrument
- 28. Music note
- 30. Noah's boat
- 31. Adore
- 33. Masurium (sym.)
- 34. An age
- 35. Miscellany
- 36. Established
- 38. A cross
- 39. Palatable
- 40. City (Fr.)
- 41. Spreads grass to dry
- 42. Do not (contracted)

- DOWN
- 1. Of the sea
- 2. Harangue
- 3. Unit of weight
- 4. Half an em
- 5. Backbone
- 6. In this place
- 7. (Algeria) lation
- 8. Covering for the hand
- 9. Clayey
- 11. Smallest in size
- 13. A corn bread
- 15. Sheltered recesses
- 18. Substance used in ale-making
- 19. Small raised cake
- 22. Befalls
- 23. Question
- 24. Malt
- 25. Military encampments
- 26. Biblical mount
- 27. The satellite of the earth
- 28. Keenest
- 29. A side
- 31. Obnoxious plants
- 32. A refuge
- 34. Greedy
- 37. Open (poet.)
- 38. National god (Tahiti)
- 40. Board (abbr.)

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

DAILY CRYPTOQUOTE—Here's how to work it:

AXYDLBAAXE is LONGFELLOW
One letter simply stands for another. In this example A is used for the three L's, X for the two O's, etc. Single letters, apostrophes, the length and formation of the words are all hints. Each day the code letters are different.

A Cryptogram Quotation
ENAKA ENHJCK VTA PVL PGE OWG
LW JW PAEEAT OWGKADR—UVTEHVD.

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