MEDICINE

Three Views of Alcohol

Alcohol pictured in three different lights, arch-villain, hero and innocent victim of malicious slander, by discoverer of Antabuse, anti-alcohol chemical.

➤ PEOPLE WHO like their liquor should take vitamin pills to avoid the fate of "drinker's liver," Dr. E. Jacobsen, Danish scientist discoverer of the alcoholism-curing drug, "Antabuse," declared at a meeting at London University, London, England.

Dr. Jacobsen pictured alcohol in three different lights: archvillain, hero, and innocent victim of malicious slander.

Leaving aside the social aspects of alcoholism, alcohol takes on the role of villain because of the ready way in which it supplies the body with a large number of extra calories. The human body is able to burn up enough alcohol each day to manufacture 1,200 calories, which is almost half the total required by the average office worker. Because of this a good deal of food a drinking person eats is not burned up but stored away as rolls of fat.

Some heavy drinkers react to the calories supplied by the alcohol by cutting down on the amount of food they eat. This usually leads to a vitamin deficiency, particularly of the B vitamins. That is where the slander and vitamin pills come in.

The slander involved is the commonly repeated story of cirrhosis and fatty degeneration of the liver supposed to be caused by the "poisonous" effects of alcohol. Dr. Jacobsen does not believe there is a shred of truth to this talk about alcohol being a liver poison. One of the functions of the liver, he says, is to burn up alcohol. This it does passively through enzyme action, so that drinking alcohol does not directly harm a good liver; nor does abstinence, so commonly prescribed in liver disorders, particularly help a bad one.

The cirrhosis and degeneration of the liver often found in chronic alcoholics is only indirectly due to the liquor these people consume. The conditions are brought about by the dependence of the drinkers on vitamin-lacking alcohol as a calorie substitute for vitamin-containing foods.

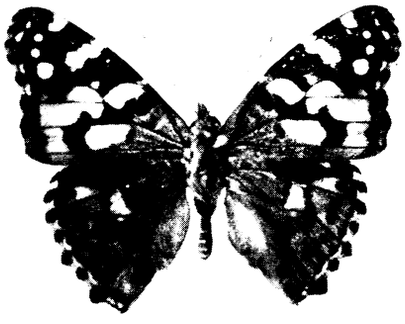
But even alcohol can be a hero and this it is in cases of poisoning by wood alcohol—"smoke," in the addict's jargon—which can kill a person or leave him permanently blind. Wood alcohol in itself is not poisonous, but in the body an enzyme turns it into formic acid, which is extremely so.

Formic acid is not burned in the body. It must be excreted and as its excretion is slower than its formation from the wood alcohol, a poisonous amount soon accumulates in the body.

The only possible way to stop the poisoning is to cut down the rate of transformation of "smoke" into formic acid. Grain alcohol (ethyl alcohol to chemists, just plain "alcohol" to the layman) is the only substance so far known which can turn this trick. When burned in the body alcohol can make use of the same enzyme needed by the wood alcohol. By giving the sufferer large doses of alcohol doctors can tie up most of the enzyme with the latter, leaving only a little enzyme free for the wood alcohol. In this way the rate of formic acid formation is cut down to a snail's pace and the body can eliminate it as fast as it is formed.

Once in the blood stream, alcohol is eliminated by most people at a steady, unalterable pace of about one-quarter ounce per hour. Exercise doesn't make the slightest particle of difference, so that the time-honored treatment of walking an inebriated person round and round is just a waste of good time and energy. Even injections of insulin do not alter the rate of alcohol elimination.

Dr. Jacobsen did, however, give scientific support to the notion that mixed drinks are less intoxicating than straight liquor. Experiments have shown that, other things being equal, the lower the concentration of alcohol in a drink the more slowly is it absorbed into the blood. This naturally slows the accumulation of alcohol in the blood and retards onset of inebriation effects.



PAINTED LADY — Also known as the Cosmopolitan or the Thistle Butterfly, the Painted Lady is a world-wide roamer. It feeds on thistle and related plants.

Explaining how his drug, "Antabuse," discouraged people from drinking, Dr. Jacobsen showed how alcohol was burned by the body first to form acetaldehyde and then to form acetic acid, the vinegar acid, the latter being readily consumed by the body in its normal metabolism. When a person takes "Antabuse" the drug partially blocks the conversion of acetaldehyde to acetic acid. The acetaldehyde then accumulates in the blood and makes the person nauseated. Consequently, the alcoholic with sufficient determination to take his "Antabuse" tablet regularly has strong encouragement to keep away from that "one drink" which otherwise becomes his downfall.

Science News Letter, February 16, 1952

INVENTION

Patent Jet Plane With Droppable End Wing Tanks

➤ A JET plane with fuel tanks at the wing tips, designed as extensions of the wings, and with the motors in the ends of the wings, has been designed by Derwood A. Beck, Seville, Ohio, and Edwyn A. Eddy, Massillon, Ohio, and assigned to the Goodyear Aircraft Corp., Akron, Ohio.

It received patent number 2,584,961.

Heretofore, declare the inventors, power plants mounted on the wings were always placed between the wing tips and the fuselage. If the wing motors are placed at the ends of the wings, they say, the wing width can be cut down and an end plate effect results which reduces the wing tip vortex.

Fuel tanks, made to be attached to the ends of the wings and designed as extensions of the wings, carry their own weight at least, result in fuel economy and facilitate take-offs. When the fuel in tanks is expended, they may be dropped by the pilot.

Science News Letter, February 16, 1952

TAXONOMY

Variegated Fritillary Tagged Erroneously as Painted Lady

➤ ON THE cover of SCIENCE NEWS LETTER for Feb. 2, the butterfly Variegated Fritillary, *Euptoieta claudia* Cramer, was erroneously identified as the Painted Lady, *Vanessa cardui* Linnaeus. Although these butterflies are both of the same family, nymphalidae, they are different species.

The first of the many alert readers of this magazine to call attention to this mistaken identification was Frank C. Cross of Silver Spring, Md. The identity of the Variegated Fritillary was further checked by William D. Field, lepidopterist of the Smithsonian Institution.

So that you can see for yourself exactly what the Painted Lady does look like, a Smithsonian Institution photograph of that species appears on the left.

Science News Letter, February 16, 1952