THE SOCIOLOGIC, ECONOMIC AND MEDICAL ASPECTS OF ALCOHOL

BY

OTTO AUGUST BACKUS

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THE SOCIOLOGIC ASPECT

The subject of alcohol, about which so much has been written and about which there are so many varied opinions, must be taken up from its various aspects. First, what is alcohol and when was it originated? Alcohol is a volatile liquid obtained by the fermentation of grape sugar. The grape sugar from which alcohol is produced may be obtained from a variety of sources, and all sorts of different vegetable substances have been placed under contribution at one time or another in the manufacture of alcohol, among them honey, fruits, starchy substances (such as corn, barley, wheat, potatoes), and the sap of plants.

It was probably not until man had reached the agricultural period of his development and began to cultivate the vegetable kingdom for food, that he first learned to make alcohol. This conclusion is suggested by the fact that all pre-agricultural people, such as the Australian, Aborigines, the Californian Indians, and the pigmy tribes of Africa, are all ignorant of this process. The pre-agriculturists are the most primitive people living - naked, or all but naked, savages, subsisting by hunting and fishing, and on the sustenance as the uncultivated vegetable kingdom affords. They all practice cookery, but are practically ignorant of the use of metals or pottery. For the use of vessels for holding water they use bamboo canes, shells, vessels made of skins, bark, wood or even stone. Of these the stone vessels alone are capable of resisting the action of fire; yet they are very seldom used for placing on the fire.

Here, probably, is a clue to the reason why man did not manufacture alcohol before the agricultural period. Doubtless the absence of substances so suitable for fermentation, as are barley, corn and grapes, had something to do with it. Of greater importance, however, is the fact that there was a lack of suitable vessels for holding the fermenting material.

Assuming that alcohol and agriculture made their appearance at about the same time, one may by estimating the date at which man first began to cultivate the soil form a rough estimate of the antiquity of alcohol.

The most ancient civilization was the Egyptian, and investigations suggest that this civilization dates back fifteen thousand years, at least. But agriculture must have existed long before the earliest Egyptian civilization. There are two distinct stages in the history of agriculture - the migratory and the stationary. Civilization dates back from the period of stationary agriculture. It is not possible for man to make any great headway while he is leading a wandering life; it was only when he had become rooted to the soil and had begun to cultivate nutritious foods in abundance, that it was possible for a division of labor to take place that is essential to civilization. One must, therefore, assume that the ancient Egyptian civilization was long preceeded by a period of migratory agriculture, say for fifteen thousand years, thus giving agriculture an antiquity of thirty thousand years. Then, if we say that alcohol and agriculture made their appearance together, alcohol likewise has an antiquity of

thirty thousand years.

The earliest alcoholic drinks were very different from those which we are now acquainted with. They were for the most part unpleasant to the taste and highly diluted, so that to produce intoxication large quantities had to be taken. The first great advance in the manufacture of intoxicating drinks came with the cultivation of fruits and cereals, from the former wine being made and from the latter beer. It is not known which is the more ancient drink of the two, but there is no doubt that the Egyptians, six thousand years ago, had four kinds of wine and a species of beer made from barley, which they flavored with lupins and other vegetable substances. The earlier kinds of beer were for the most part nauseaus compounds. Many different substances were used to flavor them, but it was not until comparatively renent times that hops were employed for this purpose.

One of the greatest discoveries in connection with alcohol was the method of concentrating it by distillation. This method was first employed by Geber in the seventh or eighth century, and it was practiced by the Arabian and Saracenic chemists. Spirit drinking did not, however, come into vogue until several centuries after this. Brandy produced by the distillation of wine was first made in the early part of the fourteenth century.

Although man discovered alcohol about the same time that he began to cultivate the soil, it is probable that persistent drunkenness was unknown before the period of fixed agriculture. This was

due to the imperfect means of storing and transporting the liquor. Such drunkeness as was indulged in was essentially spasmodic, and connected generally with special observances of a ceremonial character, for each of which the supply of alcohol had to be specially brewed.

Systematic intemperance, then, has been possessed longest by those people having the most ancient civilization. Fixed agriculture, and the civilization to which it led, began in Northern Africa, the climate of which was at that time very different from what it is today, owing to the fact that the land was at a much higher elevation. As at the present time, it was connected in the northeast with Asia, but in the north it was also joined on, and at more than one point, to southern Europe. We have thus a clue to the way civilization traveled - starting in Egypt it spread into Babylonia and Assyria, and northwards into southern Europe. When the ancient civilization of Mexico, Peru, and Central America began we have no means of knowing, but probably long before the civilization of the northern parts of Europe and Asia.

The essential factor in the attractiveness of alcoholic drinks is their power to intoxicate and narcotize. Adding attractions are agreeable taste, ability to quench thirst, ability to revive failing energy and to drown gloom and sorrow. Prohibition has shown that the ability of alcohol to intoxicate is its greatest attraction to mankind. Surely, the repulsive drinks used by so many people of the United States are not being consumed because of their ability to quench the thirst or because of their agreeable flavor, and it would be tragic

if there were so many people endeavoring to drown their sorrows.

Although it is true that some poeple enjoy alcohol most when they are feeling well, and avoid it altogether when they are out of sorts, there can be no doubt that ill health may predispose to intemperance. People who suffer from feelings of faintness or exhaustion are temporarily braced by a drink of alcohol, and they may thus get into the habit of resorting to it frequently and in this way gradually become chronic alcoholics. This happens more in women than in men. It is very common among married women of the poorer class, living under unhealthy conditions, who are chronically ill.

Nervous symptoms occurring at the menopause, such as headache, irritability, depression, flushing, shivering, faintness and giddiness, can be temporarily relieved. It is, therefore, not uncommon that women drift into alcoholism at this period of life.

Alcohol is sometimes taken, especially in the case of women, to relieve pain. Young girls often take whiskey for this purpose. Physicians now recognize that great caution is needed in prescribing alcohol as a medicine, not only because there are many who doubt its therapeutic value, but because of the danger of the patient becoming too dependent upon the prescription.

Sometimes people in active work drift into intemperance, not from self-indulgence but simply "to keep them going". In many of these cases the man is run down and needs a rest or there is a physical debility. In other cases alcohol is taken to produce artificial

courage, for example - the selfconscious man dare not appear before the public or make a speech without first taking some stimulant. A little alcohol removes this self-consciousness and gives him confidence. This may continue and thus he will become gradually dependent upon the same.

Among the physical conditions which may lead to intemperance is severe nervous shock, such as sun-stroke, or a blow on the head. The entire moral nature may in this way be altered, and one who has been strictly temperate may develop into a desperate inebriate.

Lack of occupation, loneliness, grief, domestic worry all predispose to intemperance. If a person has nothing to do he is apt to drink to kill time. If he is lonely, alcohol may make him better pleased with his own company. Home worries, pain and poverty may also be listed as causes of excessive drinking.

Just as loneliness may be a cause of intemperance, so also may sociability. The meeting of friends is often the occasion for a drink together. Business deals are often transacted over a glass of liquor, although this is not so common as it was before prohibition.

Prohibition has brought about a great change in the liquor question.* In the old days, the arguments against the use of alcohol were gathered from the abuse of alcohol. The reasoning employed was the taking of concrete cases where alcohol had ruined homes and undermined health; and various other sundry and economic reasons were presented. Alcohol was called a drug, a curse, and the expression

* Stragnall, Gregory: Medical Jour.& Record, Feb.15,1928, page 210.

"demon rum" was used. Modern psychology tells us that the fault was not in the alcohol but in the persons who abused it.

Before the enactment of prohibition laws, men drank according to their individual psychology. Today, however, things have changed - gin parties are common among all classes. Many, who before prohibition were total abstainers, now have well filled cellars and imbibe freely. Drinking has become much more common among the better class of people. Before prohibition it was a disgrace to become intoxicated, at present very little is thought of it. Younsters, with a thrill of overthrowing any ban which may be placed by state or parent, indulge freely. Many cases of neuritis, psychosis and optic atrophy are being called to the attention of physicians among younsters, male and female, under twenty years of age. It is agreed that the quality of the beverage consumed today is far inferior to that of pre-prohibition days. This is true of practically everything that is produced under cover.

I am not trying to uphold alcohol or drunkeness, but merely trying to show my feeling as to the way the question has been handled. It does not seem possible that any question can be solved by prohibition. I do not believe that the question has been intelligently met with. It seems as though it has been handled on an emotional, reactionary basis rather than on an intelligent scientific one.

Alcoholic drinks are consumed the world over, but their consumption is to some extent influenced by such circumstances as cli-

mate, the degree of coldness and humidity of the atmosphere, and the nature of the man's employment. On the whole it is safe to say that within limits the practice of drinking increases as we pass away from the equator. Alcohol, however, diminishes the resistance to cold. This was proven in Napolean's campaigns and is the experience of the Monks of St. Bernard, so far as persons traveling over the well known Swiss Pass in winter is concerned.

There has been much discussion about the relation of alcohol to crime. The following paragraph is found in Dr. G. N. Kelynack's book, "The Drink Problem of Today".

"Considering the several categories of serious delinquency we have found that alcoholic intoxication is answerable for about sixty per cent of indictable crimes of violence and for a rather high proportion of minor offenses of the same class; that it is probably the cause of nearly half the crimes of lust, and that, on the other hand, it makes no appreciable contribution to crime of acquisitiveness. And we have further seen that, while in one form of sexual crime - rape on adults- the alcoholic condition which leads to the act may be no more than simple drunkenness, all the other varieties of delinquency due to alcoholism depend almost entirely on the chronic intoxication."

According to other writers the crimes due to alcohol as given in the above paragraph are very high. The following is found in John Koren's book, "Alsohol and Society".

"Unfortunately, most of the current statistical material

both in this country and abroad from which are drawn sweeping generalizations about alcohol as a crime factor, is derived from personal (more rarely parental) histories as told by the offenders themselves. Until within recent times, evidence of this kind had the excuse that none more trustworthy was available. Modern psychopathic diagnosis, however, reveals so large a proportion of sub-normal individuals in our prison population, that the old methods of establishing causative crime relations are rendered absolete."

"Many crimes are known to be committed by persons while intoxicated, especially those against the person. But the majority of crimes are offenses against property, which for their success requires other habits than those of the confirmed drunkard. Those who prey upon society as gangsters, burglars, pickpockets and gunmen are far more likely to be drug fiends than alcoholic. Police records abundantly testify to this, as does the experience of those who are appointed as guardians over convicts."

It cannot be proven that alcohol is a factor in the cause of prostitution. It is practically the rule for prostitutes, at all events those of the economically lower class, to become addicted, sooner or later, to alcoholic excess.* As many of these women are feeble minded and are morbidly susceptable to the action of alcohol, their drunkenness is of a very obtrusive sort and brings them into frequent conflict with the police.

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* Dr. Helen Wilson's Article in Humane Derelicts.

If one were to judge from the literature it would, indeed, be difficult to judge the effect of prohibition upon the sociologic aspect of alcohol. For every hundred writers who believe prohibition a failure, there are nearly that number who believe it a success. It is my belief that from a sociologic point of view prohibition is an utter failure and one must only look casually into the mannerisms of present day living to come to this conclusion.

THE ECONOMIC ASPECT

The economic consideration of alcohol has been greatly altered since prohibition. It is too early to estimate the effect of prohibition on our industries: First, because of the lack of effective inforcement, and second because, following so closely upon a great world upheavel, during which labor's powers of production were taxed to the limit with the consequence that wages rose with the increased demand. Therefore, many disadvantages which might be attributed to prohibition may be due wholly or partly to the other conditions.

One of theleading questions is the effect of enforced prohibition upon labor. A requirement of importance for productive industry is that labor must be well and suitably fed. If the body is undernourished, its capacity for physical effort is lowered. Any radical change of diet may cause malnutrition until the people have accustomed themselves to it, and malt liquor has been an important factor in the laborer's diet. It is no easy matter to provide a substitute. Another factor in decreased production is the fact that many laborers are temporarily, and some even permanently, disabled from drinking poor liquor. The result in this situation is evident. Since national prohibition went into effect, lowered production is apparent everywhere. A special grand jury that has been looking into the cause of housing shortage in the City of Cleveland reports that it takes approximately twice as long with the same number of men to erect a house today (1922) as it did in pre-war times. They also reported

that manufacturing firms which make and sell building materials prove by their records that while wages have gone up 200 per cent in some cases, labor costs have gone up 400 per cent, indicating that the employees are getting double pay for one-half the work as compared with before the war.

Another economic factor in the consideration of alcohol is the use of grain stuffs in the making of alcoholic beverages. This was one of the big points of the prohibitionists and they spoke of it as an "enormous waste".

According to the annual report of the Commissioner of Internal Revenue, 39,748,892 bushels of all kinds of grain were used in the production of distilled liquors, during the year 1916; while the brewers statistics for the same year showed that a little under 55,000,000 bushels of grain had been utilized to make fermented liquors. The sum of the two totals amounting to something less than 95,000,000 bushels of grain used for the entire alcoholic drink industry.

It has been determined that, after the carbohydrates have been extracted from the grain, that there still remains 65% of the food value. This is dried and used as a valued cattle food. Therefore, by subtracting the 65% from the 95,000,000 bushels we get 35,000,000 bushels as the amount of grain devoted solely to the production of alcoholic drinks.

Sorenson, a great Danish authority on pure food has declared that there is no waste of cereals in brewing beer. At all

events the total number of bushels of grain actually consumed in the manufacture of beer is less than three-fourths per cent of the grain production of the country.

Dr. Fisk in his book on alcohol says: "Exact figures are not obtainable, but it is conservatively estimated that probably 110,000,000 bushels of grain are utilized in the manufacture of alcoholic beverages. Grapes and molasses (152,000,000 gallons) must not be forgotten in considering these matters."*

The United States produces annually about 5,400,000,000 bushels of grain, so that 110,000,000 bushels is only about two per cent. (Preprohibition figures). If the grain used in the manufacture of alcohol and alcoholic beverages were all loss, the cash equivalent would still be less than we pay for the activities of the rat. As a purely business propostion, extermination of the rat would be a better and cheaper undertaking than elimination of the liquor industry.

As stated before a large percentage of the grain used in brewing beer is returned to the farmer as a dairy food. Has prohibition stopped this alleged waste? Today our brewers are using the same grain in the manufacture of non-alcoholic beers. The difference in the economic standpoint is that the product has lost much of its food value.

There is still another side of the question. The people

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* "Alcohol - Its relation to Human Efficiency and Longevity, page 147.

are now buying grain and making their own beer. Signs like the one below have become familiar in the grocery store windows:

MAKE YOUR OWN AT HOME

ASK US HOW.

While home made beer has the full food value the grain from which it is made is thrown away and is lost to the farmer and cattle breeder. Yet the argument of grain waste is still being used to promote the causes of prohibition.

Wine making is an important industry in many of the countries of Europe. Before the great war the United States received large consignments of wines from France, Italy and the Rhineland, and whiskeys and ales from Britain. A substantial part ofthe export trade of Europe consisted in the shipment of fine wines, brandies, and other alcoholic liquors. These commodities must now find another market. The credits set up by the wine-growing countries are now lost to the American people and are used to make purchases in other countries; cotton from Egypt, grain and beef from the Argentine, etc. In turning away this business we are deliberately encouraging trade with our competitors.

There is probably no more important influence on national thrift than the methods employed by the government in raising the necessary funds to meet the national expenses. Prohibition has deprived the United States Treasury of over $1,000,000,000 in taxes,* (1921),

* The figures given by Prof. E.R.A.Seligman of Columbia University when testifying before the Senate Finance Committee.

and this loww must be made up from other sources. We must also take into consideration the millions of dollars spent annually by the government endeavoring to enforce prohibition. It is plainly seen then that the Eighteenth Amendment has cost our country a stupendous amount of money, and in speaking of a cost to our country we, of course, infer a cost to the American people.

Hobson, the professional prohibitionist, has estimated that at the time the Eighteenth Amendment went into effect there were one million heavy drinkers in the United States, less than one per cent of the population. Today there are many million law breakers.

America has grown great because of the freedom which was guaranteed to her people under the Bill of Rights given to us by our forefathers. This freedom has attracted some of the best blood of the Old World and the nation developed it under the Constitution. It is impossible to estimate the cost of prohibition, and what the outcome will be - only time will tell.

THE MEDICAL ASPECT OF ALCOHOL

The medical value of alcohol was recognized as far back as Biblical times:

"Give strong drink unto him that is ready to perish,
And wine unto those that be of heavy heart."

Proverbs XXXI:6

Its use as a therapeutic agent goes back, indeed, to prehistoric times where we cannot follow it. It seems more than probable though that alcohol originally taught mankind the value of drugs in the treatment of disease. The sense of warmth and well-being which alcohol produces may certainly have led our ancestors to make their first attempts at medical treatment.

The action and physiologic use of alcohol have been very extensively studied during the past twenty-five years. In spite of such study, however, there are yet a great many things to be learned about the rather general action and effects of alcohol on the organism. The British Committee* considered the role of alcohol from the standpoint of its three well known actions, that is, alcohol as a food, alcohol as a drug, and alcohol as a poison. Alcohol does play all three roles and being a food does not prevent its being also a poison.

Alcohol as a food cannot be stored in the body, nor is it

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* Report of the Advisory Committee of the Central Control Board on Liquor Traffic in Great Britain.

converted into any other form that may be stored. It is immediately used to furnish body energy and thereby prevents the depletion of reserve foods. The absorption of alcohol in the body is complete and rapid, about one-fifth of the amount taken is absorbed from the stomach and the remainder from the intestines. Only as small part of the alcohol is excreted, probably never more than one-tenth of the amount consumed, and usually much less. Twenty four hours after the substance is taken into the body it has completely disappeared, having been largely burned as a food.

Atwater and Benedict found alcohol to oxidize in the body as completely as carbohydrates and even more completely than fats or proteins. They believe that this substance could supply up to one-fifth of the required body energy. Dodge and Benedict* conclude "that several million people regularly obtain a larger proportion of total energy requirement from alcohol than they do from protein." A careful observation of many country populations in Europe will make this statement most probable.

Alcohol in some cases may be considered an emergency food in acute diseases where the intake of ordinary food is interfered with. Many physicians would claim that alcohol makes the patient more comfortable and thereby improves the appetite for ordinary food. One must always recognize, however, that the food value of alcohol for man is limited by its drug action.

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*Dodge and Benedict: Memoir, Carnegia Institution, Washington, 1915.

The drug action is the most important role of alcohol. In general its action is narcotic. As a drug alcohol lowers nervous tension and fatigue. It affects the nervous functions in general from above downward, that is, the highest brain centers are affected first, and the simplest nervous reactions are reached last.

Physiologists have found that after taking alcohol into the stomach the gastric juice has the usual amount of hydrochloric acid but less pepsin. The movements of the stomach are lessened and this may account for the relief of stomach pains. A moderate quantity of alcohol seems to have no effect, either good or bad, on gastric or pancreatic digestion.

Alcohol in moderate quantities has no effect on respiration. It effects the circulation by causing a dilatation of the surface vessels, giving a warm glow to the skin. Quickening of the pulse is brought about through the depressant action on the vagus. Alcohol shows a decided irritant action when placed in the mouth of a fainting patient and through this action the person is quickly revived. The body temperature is somewhat altered by large doses of alcohol, since the extra dilatation of surface vessels finally results in an unusually rapid loss of heat, so that the deep temperature may fall lower than normal.

The British Committee has concluded that in cases of skillful acts, the cool and self-controlled person is rendered less accurate and less skillful by even small amounts of alcohol, while on the other

hand, alcohol may improve the performance of an excessively nervous person by decreasing anxiety and self-consciousness. The sedative action of alcohol is useful when relaxation of the nervous system is more necessary than increased tension.

Alcohol may also be classed as a poison and it kills through its action on the nervous system. The lithal dose is thought to be 0.6 per cent of alchol in the blood stream. Different individuals, however, vary widely in their susceptability to the action of alcohol and an actual overdose for one person can be easily taken by another. A tolerance for alcohol is also developed to a considerable degree and has probably reached an upper limit in certain rare cases of as much as one quart of whiskey per day, an ammunt sufficient to kill a person unaccustomed to the substance.

According to Dr. William S. Middleton of the University of Wisconsin Medical School, alcohol has practically no place as a therapeutic agent. He states that if one wishes to use alcohol as a food in acute infectious diseases that it must be used in such large quantities to be of any value that the toxic properties of the drug will be produced. He also states that alcohol may be of value in such rare cases where it is desired to produce a state of well being or euphoria.

The following article was taken from Nelson's Loose Leaf Living Medicine.* "Twenty five years ago the largest item in the hospi-

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*Nelson's Loose Leaf Living Medicine, Vol.I,p.48.

tal budget was for alcohol. All typhoid fever patients were given alcohol as a routine measure, and it was used in nearly all cases of pneumonia and sepsis. In fact whenever stimulation was needed alcohol was considered the best; today when it is used at all in the wards of any well ordered hospital, the use is purely local. Alcohol is not a stimulant, but rather a depressant, and in this capacity may have its uses. In the marked nervous excitement of typhoid fever, pneumonia, or sepsis, and in the presence of delirium, restlessness, rapid pulse, a moderate amount of alcohol may have a sedative effect, which because of the subsequent improvement in the symptomatology has been interpreted as a stimulating one. We have, however, better drugs than alcohol for sedative purposes, and its disappearance from the armamentarium of the therapeutical world would entail small loss."

On the other hand there are many men, and good ones too, who sincerely believe that alcohol as a therapeutic agent is of much value. The following is a part of an article by Dr. Samuel Lambert* of New York on acute infectious diseases. "As a therapeutic agent alcohol must be considered a food and not a stimulant. The laboratory has taught us that alcohol is not a direct cardiac stimulant, but that it is a sedative to reflex irritability and a dilator of the peripheral blood vessels, thus diminishing in some measure the strain on the heart muscle; that it is a depressant to the nervous centers, relieving the sense of discomfort and restlessness of the malaise of disease and that

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* Dr. Samuel Lambert. Medical Journal and Record, Feb. 15, 1928, p.197-199.

it promotes repose and sleep. Alcohol tends to improve the digestion by stimulating the secretion of the salivary glands and the gastric juice and gastric motility, and above all - alcohol is a food of high caloric value and a food of unique quality. It is as a food that alcohol is of very special value in the treatment of acute infections.

In feeding the infectious fever patients no rule can apply to every case. In the longer fevers, such as typhoid, it is important to keep up a highly nutritious and easily digested diet and the high caloric diets have come to be universally used. Typhoid fever is controlled by inoculation and is not the menace it was fifteen years ago. But the principles involved apply to the septicemias, both those following wounds and focal infections and those complicating pulmonary diseases. The use of alcoholic liquors in these diseases is a great help to relieve the work to be done by the digestive tract in digesting the carbohydrates and proteins and fats by diminishing the amounts of these foods which must be given. A diet of two thousand calories can be made by increasing the amounts of the milk carbohydrates and often milk fats, above that normally contained in the amount of milk which is used. The protein of milk will be better tolerated if it is coagulated prior to giving it to the patients. The cereal grains, as gruels, will add materially to the total caloric value. In giving alcoholic liquors to such a patient it is not wise to give alcoholic liquors as such. The whiskeys and brandies which have been properly aged and matured by storage are less irritating and good wines are equally valuable. The usual minimum dose of whiskey is half an

ounce, diluted with six times its bulk of water every four hours, or six doses a day, which will furnish three hundred calories in the three ounces of whiskey given. The dose may be increased to the total quantity which is capable of oxidation in the body as laid down in the experiments of Melanby. The interval may be diminished to two hours and the amount increased to one and one-third ounces of whiskey and still be within the non-intoxicating limits of these experiments. This would increase the daily allowance to sixteen ounces or sixteen hundred calories in twenty-four hours and would make up more than half of the caloric demands of the most advantageous diet of high caloric value. Under such medication the patient would improve, his tongue will become moist, his pulse will be slower, and his heart action more forcible. His digestion will take care of his other foods with less discomfort, and his improved general comfort will make restlessness and delirium dminish and sleep more sound.

The problem of treating the pneumonias is an entirely different one. The involvement of the lungs and the diminished amount of air space for breathing adds a threatening factor which in itself may be the direct cause of death. The rapid poisoning of the heart muscle forms another serious consideration. Medical science has given us a specific antitoxin in certain cases of pneumonia and the hopes for the future are by no means exhausted for greater results still to be developed.

A high caloric diet is not necessary for the uncomplicated diseases rarely last for more than ten days and the complicated cases

usually pass through their critical period within two weeks, Milk is absolutely contraindicated. The possibility of adding a marked abdominal distention by a fermenting food like milk adds a further menace to reduce the respiratory space of the pneumonia patient. Water is a most important factor, for these patients perspire freely, have very dry mouths and tongues and the kidneys act sluggishly. Fruit juices are an important addition, especially the juice of fresh pineapple and the citrous fruits. Caloric energy can be supplied by the use of alcoholic liquors both vinous and distilled. Of all diseases it is in the pneumonias that alcohol is a necessity in the treatment of severe cases. Half an ounce every three hours, or four ounces a day, half an ounce every two hours or six ounces a day, or double these quantities is not too great a dosage in the severer forms of the cyanotic and fulminating cases of the disease. Under its influence the patient will be more comfortable and the heart action slowed and strengthened. The use of alcohol in infectious fevers does not exclude any other method of administering to the therapeutic indications which may present themselves."

The use of alcohol in the circulatory defects of old age has been a much debated subject. The following is part of an article by Harlow Brooks.* "The ophorism is attributed to Osler, that alcohol is the milk of old age. This is particularly true of the medicinal use of alcohol in the circulatory defects of old age."

Alcohol furnishes a nourishment which is both attractive

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* Harlow Brooks; Medical Journal and Record, February 15, 1928.

to the patient and easy and prompt of absorption. It acts also as a carminative in that it favors a desire for more nourishment and for other foods. A glass of favored wine with the meals, a highball of whiskey is a very satisfactory way of aiding digestion and increasing the caloric intake, conditions which are often so very difficult to obtain in the old, in whom the mental output both in quantity and quality is so much more dependent upon a quick metabolized food than in those of youth or middle age.

Heberden was one of the first to point out the efficiency of the alcoholics in angina pectoria. How it works, we can only suspect, perhaps because it offers to the heart muscle nourishment,as do the sugars, a quickly available source of energy, perhaps because it is a vaso dilator of no mean degree, or perhaps because it acts if properly used as a sedative or a hypnotic. At least almost any case of angina pectoris given alcoholics in appropriate and congenial form, resports less frequency and less severity of the attacks. I am , myself, inclined to feel that in addition to these purely chemical actions that the alcoholics are beneficial in angina pectoris because of their unquestioned euphoristic action.

In angina pectoris I have found the most satisfactory results to follow the habitual administration of doses at regular intervals, say at meal times, perhaps with an additional dose given at bed time. The more powerful forms are more beneficial in this complex. Brandy, whiskey, or the heavy wines (as port, sherry and the like) are prefer-

able forms to use.

In the use of the alcoholics for this purpose, the patients must be one in which the primary cause of the disease is not gout, otherwise the condition will be made worse. There is also a danger that in certain persons simulation of the attack may be practiced for the purpose of obtaining the drink of liquor. This applies also to the use of any of the other drugs of the sedative class.

Hypertension with its attendant apprehension, melancholy, and general discomfort is another condition in which alcohol acts in some cases with beneficial results. It is inadvisable to use it in instances in which the hypertension is associated with, or is dependent upon an active nephritis, in which red blood cells appear in the urine, and in which the manner of etiology pre-supposes a renal lesion., It is useful in the relief of symptoms in the hypertension of anxiety, of stressful life, and in general in such cases as have as prominent symptoms disturbances of emotional and mental character.

In the heart of old age, fibrosis of the myocardium or the brown atrophy of the heart, especially when associated with tachycardia, considerable comfort may be also afforded by the discrete use of the alcoholics. I have always surmised that the action in these instances was to lessen nervous excitability, produce a sense of well being and perhaps contribute to the strength of the heart muscle. That the drug affords comfort to the patient should alone suffice as a reason for its use, provided, of course, that it does no harm.

There are many other circulatory conditions in which the alcoholics may be used with good effect in old age, as in certain of the arrhythmias, in which emotional and psychic factors play a large part. In all of them I feel that the effects of alcohol are on the patient and that they are not directly curative to the disease, but surely it is worth while to add to the comfort of the patient in a disease condition in which cure is not to be expected and in which the natural tendency is downward. We may thus not only prolong life and comfort, but frequently materially add also to the output of work in old age."

Alcohol is considered of much importance in a number of surgical conditions. James White and Paul White* report results of treatment with paravertebral alcohol injections in angina pectoris. In five of the most severe cases of angina pectoris admitted to the Massachusetts General Hospital during a period of seven months, paravertebral alcohol injections were given in the upper five intercostal nerves on the left side. Two patients showed complete relief from the left sided anginal attacks but a continuance of mild to moderate crises on the uninjected side. Two others had their very severe attacks converted into milder and less frequent attacks. The fifth patient was apparently helped only for a few days. The relief then may be said to be 90 per cent in one case, 75 per cent in one, 50 per cent in one till death nine months later from coronary thrombosis, 25 per cent in one and 0 per cent in one.. There has not been any harmful complications, but all the patients have complained more or less of hyper-

*White, J.C. and White, P.D.: Paravertebral Alcohol Injections for Angina Pectoris, J.A.M.A. 90:1099-1103, April 7, 1928.

aesthesia of the injected nerves lasting from two to four weeks.

Alcoholization of nerves is useful in many types of neuralgia and is especially important in trigeminal neuralgia. The technique of this operation is comparatively simple to one with experience. The injection of alcohol into the semilunar ganglion for this condition sometimes gives a permanent result, but often the neuralgia returns withint a year or more.

It is very difficult to draw conclusions as to the medical aspect of alcohol due to the fact that there is so much controversy on the subject. It is generally accepted, however, that the alcoholics are of distinct benefit where an euphoria or sense of well-being is desired, or a sedative effect, and for the relief of symptoms of anxiety, of stressful life and in disturbances of emotional and mental character.

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APPROVED BY A. S. Evans
PROFESSOR OF MEDICINE

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