WINE AS MEDICINE

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Introduction

The history of wine runs back to before our knowledge. It emerges with civilisation.

Wine was first discovered by a woman.

King Jamshid, one of the culture heroes of Persian mythology, so runs the story, was fond of grapes and accustomed to store them in jars so that through the year there should always be grapes for him to eat.

On one occasion, however, he found the grapes were no longer sweet, they had fermented and he imagined that the liquid in the jar was poisonous. He labelled the jar accordingly. One of the ladies of his harem noticed the label on the jar; having been distracted by the pain of "nervous headaches" and desiring death, she drank some of the "poison". She was overpowered by the wine, fell asleep, and awoke refreshed.

With pleasure she returned to the "poison" and finished the jar. Her secret was communicated to the king, upon which a quantity of wine was made, and the King and all his court drank of the new beverage. It is generally assumed that wine making began somewhere in the fourth millennium B.C., although it may have begun a little earlier.

In the quaternary, we find the "European" vine; this period runs from about a million years ago and includes the upper Palaeolithic which ends about 8,000 B.C.; and the vine which we find at Montpellier or Tuscany or near Rome, is the Vitis Vinifera, the famous vine of Europe and the Middle-East and the vine which is the basis of most historical wine.

The therapeutic use of wine must have long antedated the oldest inscriptions that depict wine making found on the tomb of Ptah-Hotep, who lived at Memphis in Northern Egypt, about 4,000 B.C. While these pictographs document for wine an antiquity of at least 6,000 years, the written record of its medicinal use extends back only

some forty centuries. This is enough, however, to establish wine as one of the oldest, perhaps the oldest, of all medicine.

The climates of Egypt and Mesopotamia were more favourable for growing grain than grapes and beer consequently was more plentiful than wine. The medicinal wines of ancient Egypt were made predominantly of grapes, but some prescriptions called for the more romantic date wine. Thus; "To cause a woman to be delivered: date wine, Northern salt, oil, are warmed and taken at finger warmth." (The Papyrus Ebers.)

When we read the hundreds of recipes preserved in the Papyri it strikes us that at the dawn of history the Egyptians developed the style in which we continue to write prescriptions and also the forms in which most of our drugs are given today. We have added subcutaneous, intramuscular, and intravenous injections but little else. Internal remedies were usually given as potions with beer, sweet beer, or wine from grape or date. Sometimes, pills were made with bread dough and swallowed or gulped down with sweet beer.

The ingredients of the Egyptian materia medica, consisted of substances from the vegetable, animal and mineral kingdoms. While beer was everybody's drink, wine appeared probably only on the tables of the rich. The vine had been cultivated in Egypt since predynastic days, and Egyptian wines were famous until Islam destroyed vineyards here, as over all the Near East. As is well known, embalming was practised by the Egyptians. In one method described, the brain and intestines were first removed, after which the abdomen was washed clean with palm wine and then filled with aromatic gums and gum resins. The body was then soaked for 70 days in a solution of natron and was finally bandaged with gummed linen or cloth. The complicated recipes of early Egyptian medicine, as recorded in the Papyri, refer to wine only as a mixture with other medicaments.

In ancient Babylonia, where the grape did not flourish, because of the unfavourable soil and climate, wines were made from dates, palm sap and some even from sesame. For libations to the Gods, and for special medicinal uses, the Babylonians imported wine from Armenia, Syria and Lebanon. The Babylonian medical text frequently mentioned "tabatu", a beverage prepared from water and a small addition of the fermented juice of fruits, or wine.

The mythical explanation for the viticultural failure of Mesopotamia is that the Wine God Dionysus, upon learning that the inhabitants drank beer became angered, turned away from that country and thereafter denied it his favour.

Wine was one of the principal medicines of Ancient Greece. Hippocrates (460-370 B.C.) made extensive therapeutic use of wine. He

prescribed it as a wound dressing, as a nourishing dietary beverage, as a cooling agent for fevers, as a purgative and as a diuretic. He made distinctions among the various types of wine, described their different effects, directed their uses for specific conditions, advised when they should be diluted with water and, in addition, stated when wine should be avoided. In his essay on wounds, Hippocrates said: "no wound should be moistened with anything except wine, unless the wound is in a joint". Regarding the therapeutic use of wines, Hippocrates noted that the yeast and unaltered sugar of new wines were irritants of the gastro-intestinal tract; white, thin and acid wines are the more diuretic; wines rich in tannin are anti-diarrhoeic. The basic procedures of Hippocratic wound care, involved the use of Enaimons (usually anglicised as Enheme) described as a "drug for fresh wounds".

Dry Enhemes were either sprinkled into the wound, or the wound was dressed with a pad of wool dipped in an Enheme. As a wound drug, this medicated wine might be better than nothing. The four inorganic salts would probably sting but would also kill any bacteria within reach. Myrrh and frankincense would add a touch of perfume to the proceedings and join the fight against bacteria. The only dubious ingredient is the grease of wool.

Ancient Greek physicians were divided into those who used wine therapeutically and those who did not. Medicated or mulled wines have been prescribed throughout all the epochs of medicine. Most ancient wines contained foreign substances, added not only for medicinal purposes but also to make the product more palatable. When spoilage of wine occurred, a wide variety of flavourings was added to disguise the taste; herbs, spices, gums and honey. This custom survives in the vermouths and other flavoured wines of today.

Following Hippocrates came a long procession of noted physicians, who wrote of the therapeutic uses of wine. Theophrastus of Eresos described a multitude of medicinal plants decocted in wine with special reference to wines embellished with the floriated aromas of certain petalled plants. Machaon, one of the sons of Aesculapius, is said to have healed Philoctetes of a foul ulcer, by cutting out the wound, washing it with wine and applying herbs of healing. To cure long standing wounds, Hippocrates recommended the employment of unfermented wine to be used perseveringly, or astringent red or white wine. The antiquity of the use of oil and wine as a dressing for wounds, is evidenced by the parable of the Good Samaritan, related in the New Testament. The Samaritan was probably using the method of First Aid practised by his countrymen, which, unknown to them, was a mild form of antiseptic treatment.

The Graeco-Roman Period (156 B.C.-576 A.D.)

After the destruction of Corinth (146 B.C.), Greek medicine may be said to have migrated to Rome. The Romans, who had a household god for nearly every disease, looked askance upon the itinerant Greek physician, distrusting him as a possible poisoner or assassin.

Asclepiades (124-40 B.C.), was physician to Cicero, and is generally credited with the establishment of Greek medicine on a respectable footing in Rome. His therapeutics were based chiefly upon restriction of diet, the prescription of wine and the use of gentle and graduated exercises in the open air. He wrote an essay "Concerning the Dosage of Wine" in which he discussed the virtues of various kinds of wine, both Greek and Roman. At this time began the strange history of the Theriacs, antidotes and alexipharmics, the panacea or cure-alls which influenced medicine throughout the Western world for more than 19 centuries. Their major role represents a distinct phase in the historic use of wine as a therapeutic agent.

First to use the terms "Theriaca" and "Alexipharmaca" was Nicander (190-130 B.C.), a poet and physician. His verse Theriaca was written on the symptoms and treatment of venomous bites and stings of animals (Theriac is from Therion, a wild beast, later a venomous serpent). His "Alexipharmaca" is on antidotes against other poisons in food and drink. (Alexipharmic is from the Greek, Alexein, to ward off.)

After Nicander came King Mithridates (circa 132-63 B.C.), whose "true medicine", Mithridatium, was sold in the pharmacies of Ancient Rome, later copied by the great Arab physicians, then prescribed as a cure for the plague in mediaeval Europe and prized by the English as a sovereign remedy for all ills as late as the eighteenth century. Mithridates established the science of prophylactics and antidotes on an empirical basis. He experimented with guinea pigs and human prisoners.

The oldest extant medico-therapeutic of the Graeco-Roman period is "De Re Medicina", written by the Roman Encylopaedist, Aurelius Cornelius Celsus (25 B.C.-37 A.D.). His writings encompass a veritable textbook of the therapeutic uses of wine. He prescribed systematically for every disease affecting any part of the body, and most of his medicines included some kind of wine. Celsus discussed the relative medicinal values of wines from various viticultural regions of Italy, Sicily, and Greece. Another compendium of medicinal wines is found in "De Universa Medicina", written about 78 A.D. by Dioscorides, who was a Greek Army Surgeon in the ser-

vice of Nero. He is the founder of Materia Medica, as he was the first to write on medical botany as an applied science. His precise descriptions of hundreds of substances, with their dietetic and therapeutic values appended, influenced physicians and pharmacists for sixteen centuries. He advised the use of wine for countless ailments, always specifying a particular type.

This "Materia Medica" was itself based on earlier handbooks, notably those of Theophrastus (circa 300 B.C. Athens) and Cratevas, with the addition of other material. However, Dioscorides picked up much data while accompanying Roman armies and expeditions to the Eastern Mediterranean.

The original version of the "Materia Medica" probably comprised 5 books concerned with: spices, salves and oils; animal products and some plants; additional plants; trees; wines and stones.

The greatest Greek physician after Hippocrates was Galen (131-201 A.D.), who made extensive therapeutic use of wine. He compiled an exhaustive catalogue of vintages from definite areas of the ancient world, delineating their chemical characteristics and physiological effects. Like Hippocrates, Galen maintained that there was no better wound dressing than wine. While serving as a physician to the gladiators he noted that wounds when treated with dressings saturated with red wine did not putrefy. In cases of severe stabbing with evisceration, he bathed the viscera in wine before replacing them in the abdominal cavity. In the discussion of fistulous abscesses, Galen states that "before applying the agglutinant, I am in the habit of cleaning the sinus with wine alone, sometimes with honeyed wine. This wine should be neither sweet nor astringent." Galen insisted that any putrid wound should be washed with wine; another method he advocated was the application of a sponge or piece of wool soaked in astringent wine. Galen's praise of Mithridatium, and of other Theriacs, laid the foundations for their popularity during the Middle-ages and as late as the eighteenth Century.

Galen's system of healing was so organised, comprehensive, and plausible, that it ruled European medicine almost until modern times. His elaborate lists of vegetable drugs, most of them compounded with wine, are to this day called Galenicals. The Roman Emperors took all precautions, "apart from moderation, to keep themselves alive and not least, antidotes, prescribed by their doctors, to that insidious enemy". Contributions to scientific knowledge from Rome ended with Galen, and after Constantine transferred his capital to Asia Minor in 330 A.D., Byzantium became the centre of Graeco-Roman medicine.

Oribasius (325-403) wrote an encylopaedia of medicine and

strongly advocated the use of wine diluted with water as an application to wounds.

In some cases, he states he found that the leaves of the Papyrus plant, which had previously been soaked in wine, were of great value in arresting haemorrhage, and thus he unconsciously devised a mild antiseptic plaster.

Wine and the Arabic Physicians

After the death of Mohammed in 632 A.D., an arabic era commenced in which the language was Arabic and the religion Islamic but in reality it was a blend of Greek, Babylonian, and Indian cultures. Greek medicine was predominant, and this included the extensive therapeutic use of wine. The Koran forbids the use of wine, which is considered a device of the devil, although it also states that "of the fruits of the date palm and grapes, whence ye derive strong drink and good nourishment, is healing for mankind". Impelled by the restriction of their religion, the physicians of Islam wrote imposing essays against the evils of intoxication but at the same time they wrote numerous lengthy tracts on the medicinal values of wine.

Rhazes (860-932) a great Persian clinician, ranks with Hippocrates and Sydenham as one of the original portrayers of disease. His description of smallpox and measles is the first authentic account in literature. In the treatment of abdominal evisceration, Rhazes suggested "the suspension of the patient by hands and feet in a bath, in order to facilitate their return. If the intestines do not go readily back, compresses dipped in warm wine should be used." Rhazes was probably the first to obtain alcohol by distillation of wine and employed it in the treatment of wounds, alone or mixed with astringent plants.

Avicenna (980-1032), called "the Prince of Physicians", was another Persian, whose "Canon", an encyclopaedia of medicine, was the leading medical text book of the Western and Eastern world for hundreds of years. His recommendation of wine as the best dressing for wounds, was very popular in mediaeval practice. His observations also included: "wine is also very efficient in causing the products of digestion to become disseminated through the body". Actually, the Koranic prohibition of wine has seldom interfered with its medicinal use in Moslem countries because Islamic law has long been interpreted to permit the use of wine as medicine.

Albucasis (936-1013), wrote the first complete and illustrated book on surgery and instruments. He described many operative procedures and instruments, which do not appear in extant classical writings. The fame of this book spread rapidly in the Islamic world.

In the second half of the 12th Century, it was translated into Latin at Toledo by Gerard of Cremona and its influence on French and Italian surgeons was enormous. Gerard's version was first printed at Venice in 1497, and in the following century it appeared in numerous editions. The first modern edition of the text, with the Latin translation, was published at Oxford in 1778. In his Treatise on Surgery, he recommended that a pad of cotton wool, soaked in rose oil alone, or mixed with an astringent wine, should be placed on a wound. "If the wound is found to be affected by the action of air, an ointment should be applied until suppuration occurs." The fact that Albucasis in the eleventh century recognised the evil of exposing a wound to the air is very remarkable and he may be fairly regarded as one of the earliest pioneers of what is known as aseptic surgery today. On the incision of tumours, Albucasis recommended that in Winter, pads soaked in hot wine and oil should be applied, but if it be in Summer, the pads soaked in cold wine and oil, be applied until the third day. Regarding the treatment of a compound abdominal wound "if pain or gangrene be felt in the bowels—and that frequently happens—then clyster him with tepid astringent black wine." On the treatment of sinuses: "irrigate with honey and wine mingled, the value of the honey lies in its cleansing and washing, while the wine closes up the sinus, especially if it be a wine which has some dryness and astringency. When you are sure the sinus is clean of diseased matter, irrigate with those compounds that will encourage granulation in it. For example, you may take a little palm ointment and dissolve it in oil of roses and some astringent wine".

On venesection, perhaps the oldest of surgical procedures, Albucasis excelled all previous writers by naming no fewer than thirty blood vessels as suitable for venesection. Albucasis described the washing of the sites of cupping with old wine and also "the man of frigid constitution, should also take perfumed raisin wine, not too old and not too new".

Mediaeval Medicine

By far the greater part of mediaeval healing was by means of medicines. These were compounded chiefly from herbs, secondarily from animals and rarely from minerals until the time of Paracelsus. Drugs were used either externally or internally, and either as simples (that is by themselves) or in compounds. Not until the thirteenth century was there much evidence of separation of the professions of pharmacists and surgeons from that of general physician-practitioners. Most information was based on classical Graeco-Roman works, such

as Theophrastus-"Medical Botany" and the famous "Materia Medica" of Dioscorides, compiled in the first century A.D.

Healing by bloodletting was utilised and the exact place on the body for each ailment specified. For example, blood was let between the middle and ring fingers for liver trouble. The three techniques utilised were bleeding, cupping and leeching. The latter two, being specialised and less vigorous methods, easier to control than incision of veins or arteries. Leeches were carefully selected; especially recommended were green or liver coloured ones from frog ponds, covered with duck weed. They were starved for a day before applying; then if sluggish, they were dipped in water mixed with a little wine.

Wine was a common ingredient in many herbal medicines and was used, no doubt, to give a more palatable taste to what must frequently have been very nasty, bitter and unpleasant concoctions. Moreover, wine itself was long regarded as a valuable medicine, as prescribed freely. Medicines in the form of pills and lozenges were known and used as an alternative to liquids. Some miraculous cures were attributed to tablets which, when dissolved in wine, were then taken. The monasteries encompassed the hospitals and pharmacies and were the repositories for the surviving manuscripts of ancient civilisation. The monks chose not to practise surgery, their principal medicaments were mixtures of plant substances compounded in wine, according to the recipes of Galen. The active principles of these plant substances became known in subsequent centuries as Galenicals.

Each monastery had its vineyard, since wine was indispensable for religious purposes and there is ample evidence of its widespread dietary use by clergy and laity. Arnauld DeVilleneuve (circa 1235-1311), wrote the "Liber de Vinis", which established the use of wine as a recognised system of therapy during the late Middle Ages. Arnauld valued wines, both natural and medicated, above drugs alone. He used wines as restoratives, as antiseptics, and in the preparation of poultices. He made significant contributions in the rational treatment of wounds. He stated that wounds should be washed with lukewarm drying agents, such as wine or aqua vini (aqua ardenti); and that wounds such treated, heal most speedily "because the liquid cleanses and dries and also removes any harmful combination introduced from the air". He recommended the use of wine for all ages and also observed that wine was valuable in preventing ailments caused by polluted water and he directed that any water added to wine should be mixed well in advance of drinking.

Altogether, forty-nine medicinal wines were offered in Arnauld's book, "The Parables", as specifics for scores of diseases, including

malaria, T.B., gout, jaundice, pleurisy, intestinal parasites, and sterility.

For centuries, it had been believed and taught that the best method of treating a wound was to promote suppuration and that every method should be used to keep the wound open. Theodoric (1205-1296), first challenged the doctrine of "laudable pus". "No error can be greater than this. Such a practice is indeed to hinder nature, to prolong the disease, and to prevent the conglutination and consolidation of the wound." He insisted that wine was the best possible dressing for wounds, and washed the wound with wine only, scrupulously removing every foreign particle, and then bringing the edges of the wound together.

Hieronymus Brunschwig (circa 1450-1533), the Alsatian Army Surgeon, gave the first medical description of gun-shot wounds, regarding them as poison and maintained that the poison could be best removed by promoting suppuration with setons. Brunschwig made generous use of both wine and brandy as dressings and as wound drinks and ascribed to them miraculous healing powers. He popularised "aqua vite composita", a mixture of strong Gascony wine, brandy and herbs.

In 1525, a translation of his important work, on distillation, was published in London, under the title of "the Vertuose boke of Distyllacyon of the Waters of All Manner of Herbes". This was subtitled, "for the help and profite of surgeons, physicians Apothecaries and all manner of people". This appears to have been the earliest important publication in England to render the science of distillation more general and more popular.

It bestowed great praise on the aqua vitae, however, "only as a medicine", at certain times and in certain quantities; for instance five to six drops in the morning, fasting, with a spoonful of wine. The aqua vitae was said to "cure palsy, putteth away ringworms, expel poison, and it was most wholesome for the stomach, harte and liver. It nourisheth blood". By 1559, wine was no longer distilled solely by Apothecaries for medicinal purposes; already a certain number of distillers in London distilled alcohol from wine-lees and unsound wine bought cheaply from vintners and coopers.

In 1593, the year of the plague, the distillers were accused of poisoning the aqua vitae which was frequently used as an antidote. At this stage, there was an almost unlimited number of new liqueurs, known as "aqua composita", which were "laudable, comfortable, commendable and singular cordial wines". Andre Simon, writing in "A History of the Wine Trade in England", makes the comment: "during the sixteenth century, the ignorance of the doctors as regards alcohol,

its nature, properties and effects on the human body were as great, as the praise they bestowed upon it was unlimited".

Alcoholism cannot have been a major social problem in Britain, until the seventeenth century. Beer was the staple drink of all classes. The first commercial brewery opened in 1492, but a far greater volume of liquor was produced in the home or inn.

As previously stated, distillation commenced early in the sixteenth century and the small quantities of spirit produced were medicines, rather than substitutes for beer or wine.

The name "eau-de-vie" meaning water of life, reminds us that brandy and whisky originated as cordials, preparations alleged to stimulate the heart's action. The Company of Distillers which purveyed potable spirit, received its charter in 1638. There was unheard-of agreement in the medical profession, regarding the excellence of aqua vitae, which explained the remarkable rapidity with which the taste for fiery spirits spread throughout the land. There was unswerving faith in the merits of spirits as a universal cure. The drinking of distilled spirit did not become popular in England until after the Battle of Ramillies in 1706. British troops developed a taste for Hollands, a Dutch spirit flavoured with juniper berries—now "Geneva".

Gin, a corruption of "genevre", French for juniper, could be made from any spirit flavoured with juniper or turpentine. Distillers soon found that any fermentable material yielded a spirit which could be distributed to publicans. It was cheaper to ferment waste grain, vegetables of all kinds, rotten fruit and woodshavings and to distil the spirit than to brew good ale. The distillate contained far more alcohol than wine or beer and, particularly when sawdust or woodshavings entered into the mixture, was more or less poisonous. Over five million gallons of unbroken spirit, which had paid a duty of 2 pence a gallon, was sold in England during 1735. No one can estimate the amount of illicit spirit produced. In London, the period of 1742-1744 was the height of the Gin Era. Burials outnumbered baptisms, in a ratio of 2 to 1. The prints of William Hogarth are vivid reminders of the ravages of gin, inflicted upon the working population of England.

Throughout the seventeenth, eighteenth and nineteenth centuries, the use of most medicines was still an art, not yet a science and continued generally in the ways established by ancient and mediaeval physicians. The prescription of wine was almost universal and reached its highest point in medical history during these times. During this period, the different kinds of wine had their special uses: the astringent red wines for diarrhoea, the white wines as diuretics, port in acute fevers and for anaemia, claret and burgundy for anorexia,

champagne for nausea and catarrhal conditions, and port, sherry and madeira in convalescence. This was the general pattern, although the prescriptions of individual physicians varied. The pharmacies of hospitals stocked large assortments of wines and dispensed them copiously.

The Hotel-Dieu of Paris grew in a haphazard fashion, from its original site as early as the eighth century, on the banks of the Seine. By the end of the eighteenth century there were 2,627 patients in twenty wards and the wards along the river had been built out over the river as a bridge to gain ground. Boats could still travel the river beneath the wards of the hospital and supplies were brought by boat to the very doors of the cellars. Careful provision was made for the storage of all provisions, including wine.

A gruesome incident recorded in the Minutes of the Barber Surgeons Company in 1740 in London, caused much consternation in Barber Surgeons' Hall. The body of Duell, a youth aged sixteen years, hanged for rape, came to life when laid out for dissection. He fully recovered within two hours following bloodletting and the administration of warm wine. Constantly glancing around the theatre in terror, he muttered repeatedly, "don't, don't, don't". He was returned to Newgate Prison, reprieved, and transported.

The rebuilding of St Bartholomew's Hospital, in four blocks around a square was commenced in 1730, but was not completed until 1766, money being provided by a public appeal. The daily allowance of beer was 3 pints per patient and the hospital brewed its own beer. The patients paid fees to the nurses; the matron however, charged no fees but was given a salary, a house and beer and at one period was permitted to retail beer. The wards in the new hospital were in no way attractive, a full-time bug-catcher was employed at Guy's in 1740 at forty pounds per year.

The eminent physician William Heberden (1710-1801) made a thorough study of the subject of Theriacs, extending from Mithridates to the eighteenth century. In 1745, he reported his findings in an essay entitled "Antitheriaka". When he delivered this report to the College of Physicians, Heberden proposed that both Mithridatium and Theriaca be eliminated from the London Pharmacopoeia. His proposal won, 14 votes to 13. The onslaught of Heberden ridiculed the Theriacs out of existence in England but they retained their popularity on the continent for another century. The rise and fall of the Theriacs encompasses the history of poly-pharmacy. As poly-pharmacy declined, those individual substances in the complex recipes which were found to have special value were given permanent places in the "Materia Medica".

Wine, as the chief menstruum for the theriacs, was one such and during the century after Heberden, a substantial increase in the medicinal uses of wine both unaltered and in various medicated forms, occurred. "Thomson's London Dispensatory", published in 1818, contained ten formulas for medicated wines, and an extensive chapter on wines and their medicinal properties and uses. Gradually more wines were added to the pharmacopoeial lists in both the United States and England. The British pharmacopoeia of 1885 contained, among other wines, a standard for sherry and formulas for wines of citrate of iron, of orange, of quinine and also for "spiritus vini gallici", which was defined as French brandy.

Why was it that drinking was so widespread, especially among the lower social classes who could least afford it? Alcoholic drinks were primarily thirst quenchers, they were also thought to impart physical stamina. Even in the countryside, drinking water was unsafe and scarce. London hospitals wisely gave their patients alcoholic drinks, milk was a dangerous drink, even when fresh. As late as 1922, in Britain, it was found that forty per cent of all dairy cows had tuberculosis and a survey of raw milk from various districts, revealed the presence of tuberculosis in from two to thirteen per cent of samples. Edwin Chadwick, the father of sanitary reform, had his inspectors ridiculed by London's slum dwellers, for supposing that water could ever be safer to drink than milk.

The story of the Broad Street pump, when 344 deaths, due to cholera, occurred in the 4 days of September 1st-4th in 1849, is well worth recalling. The investigations of Dr John Snow dramatically traced the source of the cholera to the water supplied by the Broad Street pump.

Professor Alois Pick at the Vienna Institute of Hygiene undertook to test the popular belief that by adding wine, water could be made safe to drink. He exposed the bacilli of cholera and typhoid to various mixtures of wine and water and found that the bacteria were soon destroyed. The more wine he added, the quicker was the effect. These results were announced during the cholera epidemic of Hamburg in 1892, and Pick stated that wine should be added to water, but well in advance of drinking. As a result, medical prescriptions at the time had actually depleted temperance society memberships.

However, by the 1870s, the prescribing of alcohol was effectively challenged; the National Temperance League in 1869 founded the Medical Temperance Journal.

During the 1870s, Dr Francis Anstie, Editor of "The Practitioner", and Physician to the Westminster Hospital in London prepared the most comprehensive set of directions for the medical

prescription of wine thus far compiled. Originally appearing as a series of articles, it was published in book form, in 1877, entitled "On the Uses of Wine in Health and Disease".

The mode of action of alcohol was considered to have two aspects; it tended to check the combustion of tissues and it checked the migration of blood corpuscles through the vascular walls.

However the era of scientific enquiry was now well and truly present and was perhaps best exemplified by Horsley and Sturge's book, "Alcohol and the Human Body" (1907).

They concluded that the scientific evidence, now at the command of the medical profession, regarding the action of alcohol, could be divided into two groups; evidence indicating that alcohol does not aid the human economy, in the way popularly supposed; and evidence proving the occurrence of actual damage to the structure and functions of the different organs. Furthermore, the authors stressed that gradual and recent discovery of several valuable and reliable medicines, renders frequent resort to the use of alcohol needless, as it is often unsatisfactory, and its role is becoming more and more restricted. To further amplify their point, they stated that "the general trend of medical opinion upon this matter is shown in a striking way by the steady fall in the amount of alcohol used in hospitals during the last forty years." In fact, Horsley and Sturge concluded, "that the only surgical condition in which alcohol is still thought by some to be of use, is shock, and even in this respect, it is now giving place to other and more scientifically administered measures."

By 1900, new medicines were appearing, aspirin, the barbitals, vitamins, hormones, antibiotics, and tranquillizers. Each new product was accompanied by a deluge of elaborately designed laboratory and clinical data attesting dramatically to its marvellous efficacy. For wine, such proofs, by measurable criteria, were generally lacking. Wine, besmirched by the prohibitionists, was erased from the Pharmacopoeia, despite its magnificent record as a therapeutic agent, and gradually dismissed from most medical practice.

The Twentieth Century

Exclusion from the official books of medicinal standards did not put an end to the prescription of wines and spirits as medicine. Instead, since the prohibition law specifically permitted the manufacture of alcoholic beverages for medicinal uses, physicians prescribed them in volumes never equalled before or since. There was also a phenomenal rise in the sales of proprietary wine tonics, which appeared in unprecedented numbers, with fanciful new names and advertising.

A fascinating insight into the problem is revealed by the B.M.A. publication "Secret remedies, what they cost and what they contain", published in 1909. The preface stated that one of the reasons for the popularity of secret remedies is their secrecy. For the average man or woman, there is a certain fascination in secrecy, of which the quack takes advantage. One such remedy, was "Stevens' Consumption Cure"; the cure consisted basically of rectified spirit of wine, the estimated cost of the ingredients being 1½ pence, the cost to the consumer being five shillings.

Interestingly Cripp's "Galenic Pharmacy" (London, 1893) divided pharmacy into three sections—Chemical pharmacy: the preparation of such inorganic salts and definite organic compounds, as are used in medicine; Galenic pharmacy: the art of producing preparations of natural substances for medical use; and Extemporaneous pharmacy or Dispensing: closely allied to Galenic pharmacy, consisting mainly of the mixing or compounding of the various Galenic and chemical preparations, according to the prescriptions of the physician.

The wines form a class of preparation made by extracting the desired constituents of the drugs by means of wine. Sherry is employed, except in the case of wine of citrate of iron, and quinine wine, for which orange wine is used. The whole process being known as maceration, which consists in allowing the solvent, called the menstruum, to stand in contact with the drug.

The disclosures made in the B.M.A. publications, Secret Remedies, (1909), and More Secret Remedies (1912), must have contributed to the appointment of a Select Committee of the House of Commons in 1912. The report was published in 1914, on the day war was declared and many years were to elapse before it became illegal to advertise "cures" for cancer, tuberculosis, and other diseases.

Modern Research and Wine

The optimal strength of alcohol to water mixtures against E.coli and staphylococci is seventy per cent by weight. Yet most experiments with wine as an antiseptic have proven successful. Recent studies from Bordeaux have pinned down the mechanism to the anthocyanes, a sub-group in the large group of polyphenols present in wine.

The most important member of this group of compounds, as regards antibacterial effects, is also the principal pigment of red wine, malvoside. There is a colourless equivalent for white wines. This pigment is already present in the grapes but combined with a carbohydrate and thus not antiseptic. During alcoholic fermentation it

splits free and becomes activated. This hydrolytic cleavage cannot take place unless the solution is acid; but all the steps in the sequence work out as if prearranged because wine is very acid. The average pH for red wine is 3.6 which is also the degree of acidity that corresponds to optimal solubility of the red pigment.

By cleansing wounds with wine, the Greeks were actually disinfecting them with a polyphenol, a more complex version of Lister's phenol, the pioneer drug of antiseptic surgery. And the polyphenol of wine, malvoside, weight for weight and tested on E. coli, is thirty-three times more powerful than phenol.

A paper published in the Lancet, on 12th May, 1979, entitled "Factors associated with Cardiac Mortality in Developed Countries, with Particular Reference to the Consumption of Wine", in summary had a principal finding of a strong and specific *negative* association between ischaemic heart disease deaths and alcohol consumption. "This is shown to be wholly attributable to wine consumption". This is only one of several, recent, large and well controlled epidemiological studies which suggest a protective role for wine.

Workers both at the University of Helsinki and the University of California have demonstrated a volatile component of wine, propionaldehyde, which has a pronounced stimulating effect on blood pressure, very similar to noradrenaline. A number of polyphenols, present in red wines, have been shown capable of reducing the cholesterol level in animals.

It has been shown that the alcohol of wine is assimilated much more slowly than alcohol in comparable aqueous solutions and that a more moderate and prolonged elevation in the blood alcohol level results, without high and brief peaks. Demonstrations that wine is less intoxicating than equivalent solutions of alcohol have intensified scientific interest in the view that the regular use of wine is a preventive of alcoholism. A lead article, in the Medical Journal of Australia, on 23rd August, 1980 made the following point;

> "the dangers of light drinking (in pregnancy) have not been proven, and should not be exaggerated lest credibility be decreased or unnecessary guilt be engendered in parents of an abnormal child who have drunk small amounts of alcohol in pregnancy, and think that this has caused abnormalities which were actually due to other factors".

In conclusion, wine or in general, alcohol, has thus been removed from the modern medical man's armarmentarium. The use of alcohol still persists in skin preparation, and it is also used as a caloric addition in parenteral nutrition.

The coming of pasteurisation of milk supplies and the improved sanitary conditions predicted by Chadwick, combined with advances in microbiology, have spelled the end of the widespread use of wine in hospitals.

It is hoped, that this lecture may have illustrated some of the modes of usage of wine in the past, the indications for wine, and the methods of administration.

It is fascinating to correlate, over a span of some four thousand years, the empirical data of the ancients, with the scientific data available today. The limited modern scientific evidence that is available, indeed points to a genuine therapeutic role for wine. Today, many medical men retain a great interest in wine, and play a prominent part in wine societies. Do they know best?