The instrument is packed in a case with an arrangement which allows of its immediate extraction when it is required.

STAINING SMEARS FOR THE MICROSCOPE

There are many small pedantic practices which take up much time and might well be replaced by something simpler. Where, for example, microscopical control is of decisive importance in diagnosis the usual plan is to take a smear and lay it by for further treatment and investigation. To simplify these operations Dr. Felice Marta,[1] of Milan, uses an ordinary copying pencil. The smear being obtained, the tip of the pencil conveys a drop of water on to the slide beside it. In a few seconds the drop is adequately coloured by the pencil, and it is then allowed to glide over the smear which rapidly absorbs the stain. When dried, the smear shows uniform staining with clear definition of cells and nuclei, transparent in the free spaces, and especially an intense coloration of the microbic elements which Dr. Marta says is more distinct than that obtained by the usual colouring agents. The make of pencil is of no importance, but its colour is; the best results are obtained by blue, violet, or green, the colour being due to acidity or alkalinity of the aniline pastel, while red and yellow show admixture with earthy substances.—*The Lancet,* 1932, **1**: 272.

1. Il Policlinico (Practical Section), January 4th.

A NEW TYPE OF SURGICAL SCISSORS

Our attention has been called to the manufacture of a new type of surgical scissors, which incorporates the principle of a detachable cutting edge. These scissors have been perfected by the manufacturer of well known detachable blade knives.[2] The edges of the scissors can be easily changed, and fit on to the shank in such a way that they cannot come off while in use. The scissors are made of stainless steel and are of the same weight and pattern as standard scissors.

2. Bard-Parker Company, New York.

Special Articles

YOGHOURT AND KEFIR IN THEIR RELATION TO HEALTH AND THERAPEUTICS

BY JOSÉ M. ROSELL, M.D.,
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Nearly all the peoples of eastern Europe, southern Asia, Arabia and Africa have known of these two health-giving beverages, yoghourt and kefir, which, indeed, have been famous from the remotest periods of history. However, they have only been studied scientifically during the last fifty years, with the result that they are now being increasingly recommended by physicians and hygienists throughout the world. Indeed, there are few parts of Europe and western Asia in which yoghourt and kefir are not more or less extensively used. In Vienna, Berlin, and Paris there are many dairies which put out from forty to fifty thousand bottles a day.

The difficulties met with in carrying out milk treatment are usually due to the fact that many people find it impossible to tolerate sufficient quantities of milk in its natural state, the reason for which I have endeavoured to ascertain in previous studies on this question[1,2,3]. These difficulties, however, have been greatly lessened since the introduction of fermented milks. Yoghourt and kefir, in particular, facilitate the milk treatment not only because of their palatability but because of their digestibility, which permits of the consumption of large quantities without disturbance. Besides their advantages in this particular must be placed their valuable therapeutical properties.

HISTORICAL NOTES

On reading the medical works of ancient times which deal with the milk, kefir and yoghourt treatments, we indeed seem, as Wehsarg has phrased it, to be meeting with the revelation of an ancient culture. The bibliography of the subject is so great that it almost constitutes a small library, the names of the different authors running into several hundreds.

According to Persian tradition[4] the method of preparing yoghourt was revealed to Abraham by an angel, and to this food he owed his fecundity and longevity. Possibly for the same reason, its ancient and apparently mysterious origin, the similar fermented milk called "kefir" or "champagne of milk" was known in antiquity as the "Drink of the Prophet," and the ferment used to prepare it as the "Grains of the Prophet Mohammed," who was the one responsible for introducing it into his scheme of religion.

Yoghourt, according to ancient tradition, was used extensively as a preventive against disease and for curative purposes. It was made from the milk of quite a variety of animals, the sheep, buffalo, goat, mare, cow, and llama, etc.

Almost every village of ancient Asia, Europe and Africa had its own name for yoghourt, most of them embodying the idea of "Health" or "Long Life," and so on. From the history of Egypt we learn of a preparation of fermented milk called "Labben Raid," which signifies "Life". The yoghourt of the Assyrians was called "Lebeny," and, according to Pliny, these people regarded it as a "divine" food as well as an indispensable remedy for practically all illnesses. Another ancient historian, Jenofonte, tells of the preparation of the acid fermented milk of the Kumanos, known under the national name of "Kumys". Even to-day this is prepared and used in oriental villages, where it is sold in sanatoria called "kumys sanatoria," designed particularly for tuberculous people. Herodotus, too, writes in his History that the Tartars and other villagers of the Asiatic Occident used this drink, which is to-day called "jazmia" by the Tartars and "kesch" by the Turkestans. Another old historian, Marco Polo, refers to yoghourt and another acid fermented milk, with an alcoholic content as high as 8 per cent, which accordingly caused drunkenness. Kefir contains only one-half to two per cent of alcohol, with carbonic and lactic acids, resulting from the fermentation of the lactose. Some other names by which yoghourt and kefir are known in other countries are: "skyr," in Iceland and arctic countries; "kyael meelk," in Norway; "taete," in Scandinavia; "glumse," in Finland; "taetioc," in Lapland; drinks which are referred to by the great Swedish botanist Linnæus. From ancient times the Dutch called fermented milk "hangop," a drink similar to "Pumpermilch" of the Germans, the "hocken milk" of the Danes, the "bassmilch" of the Alpine regions, and the "huslanka" of the Carpathian mountains and Bukovina. Other forms of kefir known from ancient times are the "urgutrik" of the Bohemians, the "kunney" or "champagne of milk" of the Mongols and the inhabitants of the Russian steppes, of the Kalmuks, Kirghiz and other races. These preparations are transported in leather casks on camels, and are used with great appreciation as beverages on the caravan journeys. The "kefir" of the Caucasus, a gaseous milk containing some alcohol, is called "kisla-varenyka" by the Montenegrins, "gioddon" in the islands of Corsica, Sardinia, and Sicily, "katky" by the Tartars and in the Crimea, "mazum" by the Armenians, "oraka" and "ojran" by the Greeks, Syrians and the inhabitants of Palestine, and "kumys" by the Roumanians.

Lemgo, a traveller and historian of Asia of the Thirteenth Century, described a special part of the palace of the Shah of Persia, called "yoghourt-chneck," which was used for the preparation of a milk called "masslo," very like "tayer," an acid milk of the Jews, which was sold in distant villages, and was kept dry in sacks and transported on camels. This milk had the reputation of preventing epidemics. The Persian women used the acid milk "mosab" to preserve the freshness of their complexions.

One of the things that puzzles investigators in regard to the preparation of these milks is that most of the races named are those who have kept yoghourt and kefir in its pure form. The method of their preparation was handed down as a precious inheritance from father to son in the families who concerned themselves with these products of ancient lineage, which, in a certain sense, may be said to constitute the "secret medicine" of many countries.

The introduction of yoghourt into France, at a comparatively recent date, has led to some understanding of the bacteriological character of the two milk products, yoghourt and kefir. According to the story[5], the Emperor Francis the First, for various reasons, had lost his health and was ageing rapidly and alarmingly. The remedies of the most famous physicians were of no avail. Then it was rumoured in the Court that in Constantinople there lived a Jew famed for the cures he was accomplishing. He was called to France and cured the monarch with the milk from goats he brought with him and prepared secretly. The milk in question was "yoghourt," and the method of its preparation was divulged to the Emperor's physician on payment of a large sum. Since that time yoghourt has been used in France, and the French, with their habitual grace, named it "lait de la vie éternelle," by which name it is still sometimes known in France and other countries.

To indicate the important position which yoghourt and kefir held in the medicine of the ancients we will quote a few paragraphs from one of the most celebrated works of Arabian medicine: "The Great Explanation of the Power of Elements and Medicine," of Abu Mohammed Abdullah ben Ahmed, otherwise called Ibn Baithar of Malaga, physician of Taladins, first Sultan of Kairal. This famous work, which appeared in Damascus in the year 633 of the Hejira, was published by command of the Sultan Malek Alsahla. Manuscripts of the German translation, made by order of the Emperor William the First, are to be found in the Public Library of the City of Hamburg, and in the Public Library of Cleveland, Ohio. These paragraphs give a summary of the opinions of some of the most celebrated physicians of antiquity, Arabic, Persian, Greek, Syrian, and Hindu:—

Maserdschavia advises the use of "laban" for dysentery and all inflammatory diseases of the stomach, liver, and intestines, and, further, says: "Rid the body of poisons by destroying them."

Hunayn writes: "Laban strengthens the stomach, cures diarrhœa, produces appetite, regulates the heat of the blood, purifies the humours, makes the blood more fluid, and gives a fresh and healthy colour to the skin, lips, and mucous membranes."

Avicenna says: "This acid milk awakens the desire for coitus in warm natures and makes the mucous membrane moist.

Rhazes, who calls this milk "Mast of El-schuraz," advises it as a refreshing aliment "because it is necessary for persons in whom the ordinary milk curdles in the stomach and produces anxiety or feeling of heaviness in the stomach and unconsciousness."

Galen says: "This is very beneficial for the bilious and burning stomach and it changes the nature by purifying it." He also said that this milk has not the heat and burning quality of ordinary milk for people who cannot tolerate the latter.

Similar opinions were also held by other notable authors of antiquity—Dioscorides, at-Tabari, Alsaharavius—who advised laban for diseases of the liver, stomach, blood, and for tuberculosis, and as an injection for suppurative conditions of the ears, nose, and uterus, etc.

THE NATURE OF FERMENTED MILKS

Of all the fermented milks the most appreciated are the Bulgarian yoghourt ("yoart" of the Turks; "Gjaurt Yourt" or "Kinselo-Mleto" of the Slavs) which is very similar to the "laben" of the Egyptians, and the kefir. Their popularity is due partly to the fact that they have a very agreeable taste, and partly to the scientific study which they have attracted. Perhaps the best known are the researches of Elie Metschnikoff[6], the renowned Director of the Institut Pasteur in Paris. He and his co-workers, Leva, Pochon, Cohnenby, Herter, Brochet, Lowbbel, and others, have studied the Bulgarian acid fermented milk and the effects of the introduction of the yoghourt bacteria into the intestinal tract of man and the lower animals. Professor Metschnikoff considered yoghourt a natural and one of the most effective means of combating intestinal infections, intoxications, and putrefactions, which, he thought, were the cause of a great number of organic disturbances, such as premature senility, lack of vitality, poor colour and dryness of the skin, and arteriosclerosis. In his opinion the good health and longevity of the Bulgarians, Turks, and Armenians could be attributed to the constant use of yoghourt. Statistics show that in the Balkans out of every million of the population 1,500 reach the age of one hundred years; in central and western Europe only 9 persons in a million reach this great age. Metschnikoff thought that he had proved in a scientific manner the thesis that the bacteria contained in yoghourt would be of value in promoting the improvement and longevity of the human race if this form of fermented milk were brought into general use.

The prestige of Metschnikoff gave such an impetus to the study of the matter that other bacteriologists became interested. Yoghourt and its sister-product, kefir, attained a considerable vogue in Europe and were extensively manufactured there. Also there appeared on the market a variety of pharmaceutical products, allegedly containing the ferments of yoghourt and kefir, which met with varying success as substitutes for these milks.

Without claiming that these fermented milks are miraculous agencies which can cure all diseases and prolong life, we may agree that they are of hygienic value and are often a decided aid to the physician in connection with dietetic regimina.

Yoghourt is a coagulated milk, snow-white in colour, with a slightly acid taste, cool and refreshing, with a peculiar and characteristic aroma that suggests certain fruits, an aroma which no other milk possesses. In its genuine and perfect form it is prepared through the action of three kinds of bacteria—*S. thermophilus acidi lactici*, which gives the pleasant aroma referred to, *B. bulgaricus*, and *Thermo-bacterium yoghourti*. The last named is the strongest of the three, being competent to produce 2 to 3 per cent of lactic acid from the milk sugar, which accounts for the refreshing sour taste of the finished product. These three organisms are used in equal proportions. The so-called "Bulgarian milk" which has been introduced into America and prepared only by *Bacterium bulgaricum* is very inferior to taste and other qualities to true yoghourt prepared through the association of the organisms mentioned above. The *Bact. bulgaricum*, like other lactic acid bacteria, is very sensitive to changes in the culture medium. Cultivated on agar or in broth it very soon loses its power to cause coagulation of the milk and fermentation of lactose. Cultures of the yoghourt bacteria, sent from Europe to America, seldom arrive in a proper condition to produce good yoghourt or Bulgarian milk. Old laboratory cultures should be regenerated by ten to thirty passages through milk if an acceptable product is to be obtained.

Kefir is prepared with "kefir grains," which are formed of a natural symbiosis of many yeast-like organisms, such as *Torula kephiri*, *saccharomyces fragilis*, and three kinds of lactic acid bacteria. It resembles yoghourt in its nutritive and bacteriological characters, but is more difficult to manufacture than yoghourt. The peculiar qualities of these two fermented milks depend upon the presence of the particular associated micro-organisms in proper proportions. Kefir is foamy ("champagne milk"), and contains, besides the carbonic acid, a small quantity of alcohol, resulting from the fermentation of the milk sugar. Its casein and albumin is more evenly divided and is more strongly peptonized than that of any other fermented milk.

Yoghourt is prepared in liquid and coagulated forms, and as yoghourt cream cheese, and yoghourt ice cream. In these two forms it has the same taste and aroma. The nutritive qualities and extraordinary digestibility of yoghourt are perhaps due to the curdling process, the casein being in part converted into para-casein, albumoses, and peptones, and the milk sugar being broken down into carbonic and lactic acids. The new substances produced seem to act as stimulants to digestion. The aid derived from the bacterial ferments in altering more or less the bacterial flora of the intestines may contribute to the hygienic value of these milks.

Bacteriological experiments have been conducted upon the power of the yoghourt bacteria to hinder the development of pathogenic micro-organisms. Thus, Bindzeil showed that *B. typhosus* dies in from 30 to 40 hours when introduced into properly prepared yoghourt. Kern, also, has demonstrated the inability of *B. coli* to develop in contact with yoghourt. J. Cummata and U. Mitra, also, have shown that *B. typhosus*, *B. paratyphosus* and *B. diphtheriæ* lose their pathogenic properties if left a sufficient length of time in association with active yoghourt cultures. Berthelot showed the same thing in connection with the coccus of cerebrospinal fever, as also did Rosenthal for the cholera vibrio. Those interested in this particular phase of the subject should consult the papers of K. Kaiser[7], C. Weil[8], V. Brudny[9], J. Kleeberg[10], and Bassenge[11]. In my own experience, now extending over about twelve years, I have seldom been able to recover pathogenic or saprophytic micro-organisms after they had been incorporated for two to four days with yoghourt containing 1.65 to 2.00 per cent of lactic acid. Furthermore, spores do not develop in yoghourt until *Oidium lactis* and other moulds have markedly reduced its natural acidity. The bibliography on this particular subject has been very abundant during the last fifteen years.

MODERN VIEWS ABOUT YOGHOURT AND KEFIR

It may be of advantage to give a few quotations from the many publications on yoghourt and kefir that have appeared in recent years, confining ourselves to those of some medical importance.

Julius Kleeberg[12], in a report on the results obtained with yoghourt at the Medical Clinic of the University of Frankfort, said:

In the use of yoghourt and kefir we supply to the body one of the most perfect foods, which, thanks to its many calories, is distinguished by the fact that it contains all the requisite nutritive elements in a form easily assimilable. These milks, also, have the notable advantage that they possess strong digestant properties which aid in the digestion and assimilation of other foodstuffs, even when the intestines are diseased. Some of their digestive properties are: (1) the chemical splitting of lactose; (2) the proteins of the milk are in part changed by bacterial action into albumoses and peptones, which, besides being easy of assimilation, are physiological stimulants of the hepatic and intestinal secretions; (3) a large quantity of lactic acid is produced, which acts as a digestive and antiseptic, as well as a small amount of alcohol and carbonic acid, which act as tonics to the nerves of the digestive tract. To all this is added, as the most important factor, the influence of millions of powerful lactic acid bacilli, which corrects the abnormal flora and modifies the processes of fermentation and putrefaction, especially those that are dependent on the bacteria of the colon and dysentery groups, which cannot develop in an acid medium.

By the use of yoghourt and kefir the general nutrition is greatly improved, because these preparations increase the appetite and stimulate the digestive power of the intestinal tract. Yoghourt and fresh kefir prevent constipation, especially when used at the same time as fruit and leafy vegetables. Kefir, used for many weeks, is an excellent remedy for chronic constipation.

These milks are very helpful in the treatment of achylia gastrica, gastric ulcer, cholecystitis, intestinal flatulence, diarrhœa, and colitis. For dyspeptic diarrhœa kefir, when more than four days old, is particularly recommended, because the lactose is chemically changed into carbonic acid and the calcium salts of the milk are converted into the soluble form. In many cases of chronic diarrhœa a course of kefir, continued for several weeks, produces astonishing results, unobtainable by other treatments. In the Orient yoghourt is the remedy usually adopted by physicians and used extensively by families to combat the frequent epidemics of dysentery. It is now well recognized that the dysentery bacillus is very sensitive to acid. It dies out in a short time when in contact with 1 per cent of lactic acid. The microorganism of yoghourt produces as high as 3 per cent of lactic acid, and *B. bulgaricus*, 1 per cent.

That it is possible to use yoghourt effectively as an enema was clearly demonstrated during the World War. Yoghourt and kefir are used with equally good results in many of the children's hospitals in Europe.

Tablets, cakes, or wafers representing these sour milks are of little or no value.

From an article by Baumgarten[13], Professor of Bacteriology of the Bavarian Research Institute at Munich I quote the following:

"After almost twenty-five years of clinical experience in all civilized countries in regard to the practical results obtained in therapeutics with yoghourt it is no longer possible to doubt that in it we have an excellent curative, nutritious, and protective agent; also, apart from the consideration of its medicinal value, the introduction of yoghourt as a popular and hygienic form of food is to be welcomed. The genuine yoghourt is prepared from milk that possesses greater density, owing to evaporation; it contains, therefore, proportionately a greater amount of proteins, carbohydrates and fats, more mineral salts and lecithin than the best ordinary milk."

Chemical analysis of yoghourt by Hochanadel gave the following results:—Casein, 4 per cent; Albumin, 0.98 per cent; Albumoses and peptones, 0.75 per cent; Lactose, 2.4 per cent; Fat, 2.70 to 3.5 per cent; Chloride of Sodium, 1.38 per cent; Lactic Acid, 2.5 to 6.5 per cent; and Alcohol, 0.2 per cent. This analysis shows that the special activity of the bacteria concerned is to transform a considerable amount of protein into the more soluble albumoses and peptones.

"Besides the action of lactic acid yoghourt exhibits great bacterial potency. With each gram of yoghourt are introduced into the body many hundreds of millions of living bacteria with demonstrated antiseptic power. In consequence, treatment with yoghourt is specially indicated in diseases of the digestive system associated with intestinal putrefaction, constipation, dysentery, tuberculosis, and catarrh. Yoghourt, also, is particularly beneficial in diseases produced by intoxication, in diabetes, rheumatism, furunculosis, carbuncles, and for the purpose of correcting fermentations and putrefactions caused by dyspeptic disorders. Yoghourt is an excellent aliment for the sufferer and the convalescent. It is a hygienic and prophylactic agent in connection with many diseases. These indisputable qualities of yoghourt and, probably also, of other similar preparations, should be attributed, according to the modern viewpoint, apart from the other factors we have mentioned, to their action on the intestinal flora."

Although in Europe the use of acidophilus milk has not been so popular as on the American continent, many of the manufacturing houses have introduced a combination of acidophilus and yoghourt milk, which, perhaps, owing to its better taste and greater digestibility, seems to be preferred to ordinary acidophilus milk, especially in the treatment of children and in dermatology where a more prolonged use is to be carried on.

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J. Kleeberg and H. Behrend, Sauermilcharten, Enke, Stuttgart, 1930.

R. Wehsarg, Moderne Milchtherapie, Munich, Gmelin, 1928.

Men and Books

THE MEDICAL HISTORY OF BRITISH COLUMBIA*

BY A. S. MONRO, M.D.,

Vancouver

DOCTOR JOHN CHAPMAN DAVIE, JR., (1845 TO 1911)

This history would be incomplete without a detailed reference to John Chapman Davie, Jr., the most outstanding surgeon of his time in British Columbia. In an interview on June 15, 1930, at Vancouver, with Horace Samuel Davie, his last surviving brother, the following interesting data were obtained:

The family migrated to Canada in 1862 by Royal Mail boat *Shannon* to St. Thomas, West Indies; thence they went to Colon in the ship *Tamur*, across the isthmus by rail, and thence to San Francisco by the tugboat *Norah*. They then proceeded by boat to Victoria, arriving there in 1862. Dr. J. C. Davie, Jr., the subject of this sketch, left for San Francisco a short time later, where he graduated from the Cooper Medical College in 1865. Returning to Victoria, he practised with his father until the death of the latter, somewhere about the "mid-seventies". In the late "eighties," Dr. Davie proceeded to Europe, where, having studied the fundamentals of surgical asepsis, he became an ardent follower of Pasteur and Lister. He exemplified in his practice from that time on his faith in the teachings of Lister.

The following are newspaper references published at the time of his death.

"A notable figure in the medical life, not only of Victoria but of the Pacific Coast, passed away yesterday morning in the death of Dr. John Chapman Davie, M.D., C.M., at the family residence, corner of Saratoga and Monterey Avenues, Oak Bay. Deceased, whose name will always be inseparably associated with the early surgical history of the province, had been in failing health for a long time past, suffering from tuberculosis which terminated fatally yesterday."

"The late John Chapman Davie, Jr., M.D., C.M., was born in Wells, Somersetshire, England, on March 22, 1845, son of John Chapman Davie, Sr., M.D., a well known physician of that place. His people, on both sides of the family were west country stock. From the first, John, who was one of several brothers, was intended for the medical profession. He was educated in England in the elementary forms and in the arts, principally at Silcoats College, situated close to Wakefield in the west riding of Yorkshire. He was an able student and even at that early stage of his career he evinced abilities that were more amply proved in his later life. Among his schoolfellows and companions at Silcoats were many lads who have since become well known men. Two of these were Mr. W. T. Stead, editor of the *Review of Reviews*, and Sir Thomas Newnes. The headmaster of Silcoats under whom Dr. Davie pursued his studies was, at the time referred to, considered one of the most learned men in England. The Rev. James Bewglass, he was, and among his many accomplishments of learning he rated the ability to teach eight languages, speak sixteen and read and understand twenty-four. He was a magnificent man, according to some of his old pupils, and was much beloved by them.

"When Dr. Davie left college his father had been practising for some time in the town of Merton, in Surrey. It was planned that John, the late Dr. Davie, should take up the study of medicine at once. Suddenly, by a turn of fortune, all of the father's plans were altered, and in 1862 the entire Davie family removed from Merton to British Columbia. Since that date members of this family have resided in this province and, as is well known, have left their mark on its history.

"Doctor Davie, after the family had settled in British Columbia, was allowed to follow the original plan as laid down in the Old Country, that of taking up the study of medicine. He took up his residence in San Francisco and began his studies at the foremost medical school in the west, that connected with the University of California. Among the members of the faculty under whom he studied and who influenced him to a considerable degree in his work were two well known men of the past in

* Previous instalments of this article can be found in the *Journal*, 1931, **25**: 336 and 470; 1932, **26**: 88 and 225.