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K O U M I S S

AND

ITS USE IN MEDICINE.

BY

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1870.

MISS

ITS USE IN MEDICINE

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LONDON

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LONDON

1870

ON

KOUMISS, OR MILK WINE.

I INTRODUCE this new preparation of milk into this Country in the hope that it will very soon find the employment it deserves in combating, with success, the greatest evils of the human race. It was when I looked around for a scientific explanation of the causes to which the well-known immunity of the nomadic tribes of the Bashkirs and Tartars, from Consumption, Bronchitis, and Emaciation, may be chiefly due; that I came to consider with the physicians of Russia and Germany, a very popular belief of these people, which ascribes their exemption from these diseases to the almost exclusive use they make of the preparation of mare's milk, called Koumiss (Kumis), a beverage which they drink in a state of fermentation. Although it is obvious that one cause alone could not well account for such an exceptional fact—and I do not underrate the advantages of a completely free life in the open air, and of an almost exclusively animal nourishment—nevertheless, I have decided to produce a similar preparation from other kinds of milk, brought as nearly as possible to the chemical composition of mare's milk, which can be done, as confirmed by Drs. With, Schnepf, and others, in their recent works on the subject. The preparation of Koumiss is exceedingly difficult, and the proper method of preparing it was for a great number of years quite unknown to the nations of Europe. Amongst the first authors who

speak of Koumiss, I may shortly mention Marcus Paulus Venetus, who gives some account of it in his history of the Eastern Nations (*de regionibus orientalibus*, lib. I. cap. 57), published in the thirteenth century. Strahlenberg, in his description of the Roman Empire, p. 319, mentions its use and preparation by the Kalmucks. Gmelin, in his history of a tour through Siberia, pays more attention to the Tartar method of distilling a spirit from the wine of milk. Dr. Pallas, the celebrated traveller and professor of natural history, also gives an account of it (*Physicalische Reisen durch einige Provinzen des russischen Reiches*, T. I. p. 226). Afterwards some writings appeared by Newman, an eminent German chemist; Lucas, a Dominican monk; Voltelen, a chemist of Holland (*observationes de lacte humano cum asinina et ovillo comparato*, p. 54); and Masquer, who all give some account of the same subject, but so differently, that no one could be able to understand the real method of the Tartars in preparing the renowned beverage. At length, in A.D. 1784, an account of much more value, was published by John Grieve, M.D., F.R.S., Edinburgh, late Physician to the Russian Army, who made some very clear observations, on the use of Koumiss as a medicine, in a paper, which was read by Dr. Black, July 12th, 1784, in Edinburgh, and published in the Edinburgh Transactions. He began as follows:—

“ In an age like the present, when few things in nature seem
 “ to have eluded the researches of philosophy, when the
 “ communications of learning are as well established as those
 “ of commerce; it may appear somewhat surprising that one
 “ of the most important productions of milk should still
 “ remain, in a great measure, unknown to the most enlight-
 “ ened parts of Europe. The production I mean is the vinous
 “ liquor which is procured by fermentation from mare’s
 “ milk; and it was scarcely to be expected that, after it had
 “ escaped the observation of men the most skilled in
 “ chemistry, it should be taught us by a horde of Tartars,

“ whose rank in society is not above that of barbarians.
 “ Even in Russia itself it was with difficulty I could learn
 “ the particulars of the preparation; and though it has
 “ been used for some ages by several tribes of people who
 “ belong to that Empire, yet in the year 1781, when I first
 “ began to think of employing it in medicine, it was as little
 “ known in what may be called Russia Proper, as it is now in
 “ Great Britain. If the Academicians of St. Petersburg
 “ gave some accounts of it, these accounts have never excited
 “ the attention of the Physicians of Russia. This neglect
 “ is most probably to be ascribed, partly to the obscure
 “ relations of travellers, and partly to the pride of system
 “ which men of learning are too often apt to indulge in,
 “ rejecting as incredible whatever does not coincide with
 “ their own preconceived opinions.”

It was only after very long and tedious trials and experiments that my efforts were finally crowned with success, by obtaining the sparkling Koumiss, which, if kept cold, is not only pleasant to the taste, but is so easily digestible as to be assimilated readily by the weakest stomach, which would be incapable of digesting even a small quantity of other food. “ Milk is blood,” says Dr. With, that is, it can take the place of both food and drink, and contains, in the most perfect proportion, nourishing matters from all those groups which serve as a standard for estimating the value of food. Being rich in phosphates of lime it forms the solid base of the body, the bony system; through its albuminous (nitrogenous) ingredient, the cheesy matter or casein, it serves to form flesh, epidermal, fibrous and horny tissues; through its great amount of milk-sugar, an amylaceous body, free from nitrogen; and through fat contained in it, already well prepared, it produces embonpoint. Milk has, therefore, occupied from the earliest times one of the first places in the series of plastic nourishments; but it is at the same time an emulsive fluid of a stale taste, and requires no small amount

of digestive power; and even with a strong digestion it becomes impossible to take a large amount of it for any length of time, and very soon a certain dislike or aversion is established.

Medical art and science have endeavoured in their treatment with milk to overcome this great objection, by mixing it with aërated mineral waters, with aromatics and alcoholic liquors, but even with these additions they have seldom succeeded in their purpose of conquering the instinctive aversion of the gastric nerves to a large consumption of simple milk. Again, art succeeded in separating from the milk all those matters which were supposed to require more digestive power, on account of their protein or nitrogenous ingredients, and their coagulability in the stomach; and which do not prove beneficial, especially in certain persons, because the fresh milk rapidly curdles in the stomach, and forms large firm lumps. Now, by separating the coagulable matters from milk, whey, another modification of milk, is produced, which is largely employed in many cases; and although whey, freed of the heavily digestible substances contained in milk, may certainly prove easier of digestion, and may more easily be largely consumed by even an irritable stomach, than the pure undecomposed milk, still there remains one great objection to this kind of preparation, which is, that the valuable nourishment contained in the milk is considerably diminished; and it is obvious that on this account whey can never take the place of the highly nutritious milk, and, therefore, can never be applied to the purpose of a proper plastic treatment, where the solid nitrogenous ingredients especially are required to build up or replace where loss of organic matter, fat, flesh, blood, &c., has taken place. According to the more recent school of medicine, whey is only of a limited value, at the most perhaps as a cooling, refreshing remedy, calming irritation and supplying the body with slight nourishment, and indicated in stout, plethoric persons. More important, therefore, for this reason, is another arti-

ficial modification of milk, which, *without separating a single ingredient from it, yet gives it that highest plastic power which depends not only on the larger amount which can be consumed, but also upon the easier digestibility or assimilation of the milk itself, and this only through the chemical change of the Milk Sugar by fermentation into Alcohol, Carbonic and Lactic Acids*, a modification in which the lumpy formation is completely avoided by the process through which the milk passes before it becomes ready for use, when the particles assume such a very minute form as to make it the lightest food possible, containing at the same time all the invaluable nourishing and strengthening qualities of the new milk. This production is Koumiss! which, it is surprising, has been employed by the inhabitants of the steppes of Russia alone on a large scale, and has not only remained for a long time unknown to the civilized west of Europe, but practically has never yet met with proper attention at the hands of the medical profession. It is an excellent dietetic remedy, which however, through its wonderful plastic power, may become a radical remedy in very many diseases; and to make it known in Great Britain, and all English-speaking countries, even so little as the limited space here will permit, I will proceed at once to a few short notes of its further literature.

From the time of Dr. John Grieve (before mentioned) till the present, there have appeared many other publications by most eminent physicians in Russia, and during the last fifteen years in Germany also. It would be impossible to enumerate here, for want of space, even shortly, the various authors in the different years, but in order to give some idea of the Country of Tartary and its inhabitants, I append a short description from Drs. Neftel, von Dahl, and Spengler:—"Koumiss, as prepared from mare's milk, has its native country in those regions of the Russian empire in Asia, between the Don, Volga, and Sea of Aral, consisting of the steppes inhabited by the Kirghises and Tartars, es-

pecially in the Country of Orenburg which, according to Alexander von Humbolt, belongs to the so called 'Continental Climate,' where the summer is exceedingly dry, and the heat very great, with scarcely any rain, whereas in winter, continuous frosts are prevalent. The Kirghises are a nomadic people, belonging to the Mongolic race, generally of a very strong, many of them of an athletic, constitution, with great muscular development and well shaped thorax (Neftel). They are all brunettes, with black hair and eyes, and very white healthy teeth. They pass the whole of their lives in the open air, mostly on horseback, and dwell during summer and winter in tents called Kibitka. Their food is very simple; they live exclusively on meat, especially the flesh of the sheep and horse; and in winter and summer their favourite beverage is Koumiss. Scrofula and consumption are unknown amongst them, as affirmed by all authors and travellers; and consumptives travel into their country from all parts, in order to submit themselves to a course of Koumiss, which acts so beneficially upon this kind of disease. In order to obtain milk in a sufficient quantity, the Tartars are accustomed to separate the foal from the mare during the day, allowing it to suck only at night, and when the milk is to be taken from the mare, which is generally about five times a day, they always produce the foal, on the supposition that she then keeps quiet for the milking, and yields her milk more copiously when it is present. Usually they drink Koumiss, prepared from mare's milk, during the summer, but during winter (when mare's milk fails them) from cow's milk which is also susceptible of the vinous fermentation. This they call Airen, Arjen or Arjan, but they always prefer Koumiss when it can be obtained, as it contains a greater quantity of spirit which they call Arika. The fresh Koumiss they call Koumiss-Saumal; the old, Koumiss-Su. The Kalmucks call it Tschigan, and others Aracu, but Koumiss is the Tartar name for the fermented mare's milk. The fresh mare's milk is

called by the Kalmucks Sjouven-Ousjoun, and the fresh cow's milk, Oukiren-Ousjoun, &c. In their tents, where they live, they distil a spirit from Koumiss, which they keep all the year round in stock. They usually keep their mare's milk in a bag made of horse's hide undressed, which, by being smoked, acquires a degree of hardness. Its shape is conical, somewhat triangular from being composed of three different pieces, set in a circular base of the same hide; the sutures, which are made with tendons, are secured with a covering on the outside, with a doubling of the same skin, very closely fastened. It has a rather dirty appearance and disagreeable smell. These leathern bags they use both for the preparation and transport of Koumiss on their vans. They usually cover these bags with a woollen cloth, a thick rug, or large sack, but so that the stick at the lower end (made in the manner of a churn staff, and used for agitating the vinous liquor) may be in sight and at hand. In some parts they transport it on the backs of camels, supposing that the continuous agitation gives a better flavour and stronger taste to the Koumiss, which they spare for particular occasions, as weddings, for the entertainment of good old friends, &c., where old Koumiss is of greater value, being more advanced in fermentation, stronger and more exhilarating. Now, I may add, that Koumiss, which of late years has been more appreciated by European nations on account of its great curative power, had always a great reputation in curing and *preventing chronic lung diseases, especially consumption in its first stage*. Therefore there are (especially in Orenburg and Samara, where excellent Koumiss is prepared) proper institutions where patients, mostly consumptive ones, come, even from very distant countries, in order to undergo a six or eight weeks' course of Koumiss Treatment under the care of skilled physicians, as Dr. Postnicoff in Samara, whose reports on his Koumiss Institution (supported by the Imperial Government)

speak with great favour of the treatment of phthisis or consumption by Koumiss." Also Ucke's work (1863), on the climate and diseases of the town of Samara, gives Koumiss the highest rank as a food, most easily digestible, even by the weakest stomach, possessing almost a specific healing power over the *mucous membranes of the throat, bronchi and lungs*. Dr. von Chomenkoff, who testifies to the great benefit of Koumiss on himself (in his book on Koumiss) states that he has been completely cured of a very chronic lung disease and weak power of digestion by its use. He says :—" Koumiss is a natural dietetic remedy, suggested, so to say, by nature itself, and therefore preferable in many respects to numerous drugs. All those who drink Koumiss agree in saying that they do so not only without disgust, but with pleasure, that it renders their veins turgid, their complexion (especially that of ladies) clear and beautiful, that they acquire a sprightliness, vivacity, and plumpness, and that even when taken in excess, it is never followed by indigestion or any of the symptoms which usually attend the abuse of other fermented liquors." According to Drs. Grieve, Neftel, Spengler, &c., the Bashkir Tartars, who, towards the end of winter, are much emaciated, no sooner return in summer to the use of Koumiss, than they become strong and fat. The author of an historical description of the nations which compose the Russian Empire writes :—" Le Koumiss est bien nourrissant et peut tenir lieu de tout autre aliment. Les Bashkires s'en trouvent très bien, il les rend bienportant et gais, leur donne l'embonpoint et de bonnes couleurs." Very interesting also are the communications which the private councillor, Dr. P. De Maydell, medical inspector for the Government of Orel in Russia, gives the result of an eight years' residence in Orenburg (1843-51), with many cases of Koumiss treatment under his advice. Dr. Herrmann Beigel, Physician to the Metropolitan Free Hospital, London, mentions Koumiss and Airan in his very interesting book, "Balneologische

Notizen über die Kurmittel des Bades Reinerz," p. 914. Erlangen, 1863, when speaking of immunity from consumption, its causes, and the places where it exists. Dr. With expresses himself in his work:—"Koumiss ist der entschiedenste Gegner aller Magerkeit und besitzt die hoechste Potenz der Ernaehrungsfahigkeit" (Koumiss is the most decided enemy of emaciation and has the highest power of nutrition).

The best Koumiss is manufactured in the Government of Orenburg, especially on the large estates of Testeleff, in the village of Kilimow, in the district of Beleber. In the Governments of Stauropol, Taurien, and on the Caucasus, the Koumiss is not so well prepared and has an unpleasant effluvium of horse perspiration, as even the best sorts of Koumiss prepared from mare's milk, always have, more or less, but to which patients soon grow accustomed. Koumiss institutions, supported by the Imperial Government of Russia, are now existing, as a great blessing to hapless and suffering humanity, in Samara, under Dr. Postnikoff; in Odessa, under Drs. Levenson; and in Moscow, under Dr. Stahiberg, the last and most able writer on Koumiss. These establishments are preparing their Koumiss from mare's milk; but within the last ten years, nearer to the centre of Europe, we find institutions where the Koumiss is prepared from cow's milk, as in Warsaw, under the management of Dr. Przystanski, who resided for six years in Tartary, where he learnt the art of preparing and administering Koumiss which he, and Dr. Nowakowski, now make of cow's milk, and for which they received a vote of thanks from the last meeting of the Polish medical men, chemists, and naturalists in Cracow, where they exhibited it on that occasion.

In St. Petersburg, and many other towns of European Russia, there are also institutions where Koumiss is prepared from cow's milk by workmen brought expressly from Tartary; and in Charlottenburgh, near Berlin, and Otten-

stein in Saxony, a romantic, rocky watering place, new Koumiss institutions have grown up, and prove beneficial to the dyspeptic, consumptive, and bronchitic world.

According to some authors, results from Koumiss treatment are only due to a favourable climate, but it would be very unjust to say that they can only be obtained in certain localities; and in order to see how erroneous their opinion is, we will follow Dr. With's able explanation, in which he shows, in a chemico-physiological way—which is the right and just one—how the corresponding effect may be expected and obtained; and it will only then be possible to take up a definite dietetical and therapeutical view, which certainly, in the end, will prove how much a warm temperature may help to develop completely the powerful effect of the Milk Wine Treatment, but as to the rest it would be quite unjustifiable to speak of a local boundary only; and we are bound, by the distressing position in which we stand towards those diseases, where milk-wine (or Koumiss) is to be recommended, to be guided by experiments, in order to come to a more satisfactory conclusion, and such experiments ought always to be repeated by more experienced and skilful hands than my own. The principal ingredients of milk are casein, fat, milk-sugar, mineral salts, especially phosphate of lime, chlorate of potass, chlorate of soda, magnesia, some iron, &c., and water. The proportion in which these ingredients occur in milk is not only a variable one in man and in different animals, but varies also, and in certain cases very much, in one and the same individual, according to the amount, diversity and quality of the food, according to the time after the confinement, and even according to the period of the day.

According to Dr. With, woman's milk is proportionately poor in cheesy matter, 2.5 in 100 parts; rich in milk sugar, 6.5; and fat, 3.6. Mare's milk is still poorer in Casein, 1.6; very poor in fat, but in milk-sugar extremely rich, 8.6; and for this reason, very fit for Koumiss fermentation. Ass's

milk has about 6·7 per cent. of milk-sugar, and only 1·8 per cent of cheesy matter, and 0·1 of fat; whereas goat's milk has a greater amount of Casein (4·0 per cent.), and much fat (3·3 per cent.), and is poorer in milk-sugar (5·3 per cent.). Cow's milk again is the nearest to goat's milk as regards the amount of Casein, 3·8 per cent.; fat, 3·5 per cent.; and milk-sugar, 4·6 per cent.

Professor Lebert and Professor Kühne, in their recent works, cite the following table of chemical composition of milk, according to Gorup-Besanez, giving the average numbers of many analyses, viz. :—

IN 100 PARTS OF MILK.	WOMAN'S.	COW'S.	GOAT'S.	SHEEP'S.	ASS'S.	MARE'S.
Water	88·908	85·705	86·358	83·989	91·024	82·837
Solid Matters ..	11·092	14·294	13·642	16·011	8·976	17·163
Casein	3·924	4·828	3·360	5·342	2·018	1·641
Albumen	—	0·576	1·299			
Butter	2·666	4·305	4·357	5·890	1·256	6·872
Milk Sugar	4·364	4·037	4·004	4·098	5·702	8·650
Salts	0·138	0·548	0·622	0·681		

Ass's milk is therefore the thinnest or most watery, and sheep's milk contains the most solid matter after mare's milk, which has still one per cent. more, but is very scarce or impossible to be had in this country. Ass's and mare's milk show therefore an unexpected result in this comparison of milk, and this difference is the more surprising, as both belong to the genus "Equus," but their food is very different; and it is proverbial, that an ass only is satisfied with little, therefore the milk can only be very poor in solids. Still in tubercular inflammation, asses milk is recommended very much; in other cases, as in very emaciated persons, perhaps sheep's milk would, from its chemical composition, be best; but we cannot enter here any further into this matter, on which I will treat more elaborately in my next and larger treatise on Koumiss. If we recollect again the chemical changes which milk undergoes in the process of fermentation, we must especially fix our attention on the decomposition of Milk Sugar into Alcohol, Carbonic and Lactic Acids. The Milk Sugar is said to be composed of $C^{12}H^{22}O^{11} + H^2O$; through the addition of a ferment it de-

composes into $C O^2$ and Alcohol $C^2 H^6$. In consequence of this chemical decomposition the sugar yields two bodies, unlike and even opposite to one another in their chemical character :

1. Basic Alcohol.
2. (a) Carbonic } Acids.
 (b) Lactic }

Milk-sugar alone is not fermentable, but is capable of being converted into fermentable grape-sugar, and this conversion must necessarily have been influenced by the lactic acid. Kastner ("Handbuch der angewandten Naturlehre") is of opinion that the milk-wine, in addition to Lactate of Alcohol, contains Butyrate of Galactin, and also perhaps Butyrate of Glycyloxyde. These fatty acids contain carbon and hydrogen in great excess, which accounts for the marked combustibility of oils and fat. In any case the lactic acid, chemically as well as physiologically, plays a very important part in the milk-wine, and we are therefore justified in regarding milk-wine as a lactate of alcohol, the alcohol of which seems, however, to be less intimately combined with the lactic acid than in similar alcoholic combinations in other wines and beers ; and it is essential to the sparkling or so called champagne wines that the carbonic acid in them should be more firmly combined with the alcohol, whereas in the milk-wine the lactic acid, as a stronger acid, expels the carbonic acid, and therefore it escapes more easily from it, so that the milk-wine loses very quickly its amount of carbonic acid. In directing our attention to the physiological effect of Koumiss, we may suppose that the nutritious value of animal milk is commonly pretty well-known ; and here it is rather more important for us to define the nutritious and healing property of the milk-wine, as far as regards the accessory agents produced by the process of fermentation, that is to say, alcohol, carbonic acid, and lactic acid. An attempt to give a scientific definition of the physiological effect of Koumiss, must necessarily depend

upon an analysis of it, and by defining the effect which each single ingredient produces, we shall be able to form a conclusion as to the sum total of their effect, both on the healthy organism and on the diseased. We are indebted to Dr. Stahlberg for the publication of the first analysis, made by Hartier, a chemist of Moscow, of two days' old Koumiss, from Steppe mare's milk :—

Alcohol	1·65 per cent.
Fat	2·05 „ „
Milk-sugar	2·20 „ „
Lactic acid	1·15 „ „
Finely-divided Casein .	1·12 „ „
Salts	0·28 „ „
C O ²	0·785 „ „
<hr/>	
Total non-volatile }	6·80 per cent.
Ingredients	
Water	

Of these, fat, milk-sugar, casein and salts are contained as well in common milk, but alcohol, lactic acid and C O² are proper only to Koumiss. Milk-sugar and fat, we know, increase the formation of fat; casein with its plastic property restores the organic tissues, and the salts in Koumiss are, in relation with our blood, salts, chlorate of potasse, soda, &c., and certainly not without an influence upon nutrition. In the second class of ingredients, proper to Koumiss only, *Alcohol* stands first. Its effect has been studied by Duchek (Prager Vierteljahrschrift III. 104, 1863), and his results have been shortly as follows :—
 “Alcohol becomes oxydized if taken by the organism in consequence of its great affinity for Oxgyen, and is converted, at the expense of the oxygen introduced by the process of respiration, into Aldehyde and other products of oxydation, whereas the hydro-carbons introduced with the food partly remain unoxydized in the organism and distributed by the blood circulating in the body. They are deposited as fat in those places which have the greatest

tendency to such deposits. In this way the puffiness of drunkards find its very simple explanation. Other experiments have further proved that Alcohol lowers the temperature of the body, especially in the first stage of its action, during the dilatation of the blood vessels. The great tendency to sleep during the Koumiss Treatment is entirely due to its alcoholic contents. A healthy sleep ought to restore a person in the morning; but the frequent breaks in the sleep of patients suffering from chronic lung diseases certainly destroy the strength as much as the fever does; and very interesting and convincing are the experiments of Pettinkofer and Voit (Sitzungsbericht der Bair Acad. der Wiss., 1866-67) in the great respiration apparatus, through which it became evident that the organism at rest in the day-time gives off more carbonic acid, whereas during the night it takes up more oxygen, and the carbonic acid is formed in the day from the oxygen taken up during the preceding period of rest; so that the oxygen, which is consumed in a greater quantity during exercise or work, is replaced by a greater introduction of it the following night; and as long as this compensation takes place without disturbance, the person feels himself recruited in the morning after sleep. *The Lactic Acid* gives to the milk a more acidulous taste, diminishes the frequency of the pulse, improves the digestion, and acts as an anti-phlogistic, cooling, and refreshing agent, especially in hectic fever. Many attribute to its presence the diuretic effect of Koumiss, and the fact that old Koumiss acts much more in diminishing the mucous secretion than new, seems to be dependent on the lactic acid also. *Carbonic Acid* acts, according to the experiments of Cyon (compt. rend. de l'Acad Sciences LXIV.), by irritating the vagus ends in the heart, and diminishes, therefore, the heart's action. According to Traube and Thiry it irritates the inhibitory nervous system and also vasomotor centres, so that the lateral pressure in the vessels becomes increased

in both. This increased pressure, and the more energetic contraction of the heart, depend upon the influence of the carbonic acid, which causes the contraction of almost all the arteries of the body. We know that the carbonic acid calms the gastric nerves, even in those irritated states where the most easily-digestible substances readily produce nausea, vomiting, &c. It makes the Koumiss more palatable, and divides the caseous and fatty matter into such minute particles, that the very weakest digestion must necessarily be influenced by its use in a pleasant and satisfactory manner; moreover, it increases diuresis, as other effervescing drinks do. Summing up these detailed effects of Koumiss, we find in one and the same remedy the following properties:—

- A. The effect of Alcohol in forming fat, diminishing heat, and producing sleep.
- B. The effect of Milk-sugar in increasing the weight of the body.
- C. The effect of Lactic Acid in diminishing the temperature, frequency of pulse and mucous secretion.
- D. The effect of Casein in restoring the organic tissues.
- E. The effect of Carbonic acid in diminishing the frequency of the heart contractions, increasing the energy of the heart's impulse, in producing diuresis, and in calming gastric irritation.

All these properties taken together we find in Koumiss alone; and "Where in the world," exclaims Dr. With, "is offered to the human race a better dietetic, and, in consequence of its regulating power over tissue change, a more healing remedy than Koumiss?"

According to some authors also diaphoresis is produced by Koumiss; but perhaps this depends more upon the higher degree of temperature during which it has been taken and to the usual influence of any beverage consumed in a larger quantity, than to a special diaphoretic effect. It is true, that in a cool temperature, only a smaller quantity of

Koumiss can be taken than in a warm one ; but this depends rather on a diminution of thirst, and if the transpiration in cold weather is lessened, it is again counterbalanced by a greater diuresis, and this compensation accounts for the non-occurrence of any bad consequences to the digestive organs. Dr. Stahlberg regards Koumiss as nothing else than an excellent dietetic remedy, which includes for instance the properties of the waters of Ems plus a greater nutritious power. Koumiss may be taken even in the coldest winter, if all due precautions be observed in having well-ventilated and warm rooms. The effect will then be as certain as during the warmer season ; but where it is possible to undergo a treatment for chronic diseases during the warmer seasons, with the opportunity of nice walks, &c., in open and pure good air, it ought certainly to be done, in order to provide the debilitated organism with sufficient strength to overcome the bad influences of the winter, and the body with more healthy materials and vital power.

Passing on now to the therapeutical efficacy of Milk-wine, and the more specific indications for its use, I must necessarily be very brief and refer to my next larger publication, where all the authors will be mentioned, with their rich experience, crowned sometimes with surprising success. Even in desperate cases they have sometimes obtained either complete cure or, at least, a great prolongation of a life which otherwise would have been rapidly shortened or cut off ; and, moreover, the life thus prolonged has been rendered comparatively bearable by Koumiss, which otherwise would have been a continuously tedious and insupportable existence. I refer, in the short notes which follow, especially to the last four special works on Koumiss by Drs. Lersh, Schwepp, With, and Stahlberg, who all give the same favourable opinion as to the great effects of this valuable remedy. The public at large in Russia is accustomed to see in Koumiss a specific against consumption, and when a physician advises a

patient to take Koumiss, the latter at once conceives the idea that he suffers from consumption, and, in fact, the belief in the specific power of Koumiss in consumption has taken such root, that patients with a consumptive disease at once use it of their own accord without any farther appeal to medical advice, and usually it very soon produces such a beneficial effect, that the enormous fame of Koumiss among the public must not astonish any one. We shall now see how far this reputation is a well merited one. First, we see a certain group of objective symptoms from the treatment with Koumiss in consumptive diseases, (which, according to Dr. Grieve, 1784, and Dr. Stahlberg, 1869) are already manifested during the first two weeks of treatment. First of all, a change in the colour of the face becomes evident; the paleness of the skin gives place to a pink complexion; and this is so constant in the warm season, that the people of Moscow gave it spontaneously the name of Koumiss-complexion. The cause of this phenomenon we must seek for partly in the quality of the blood, and partly in its distribution. Professor Chomenkoff* found that, during the Koumiss treatment in consumptive diseases, the blood was greatly changed; it becomes thicker, contains more fibrine, more hæmoglobin, and less serum, than before the treatment; and such a change is very obvious, taking into account the easy digestibility of the beverage which is absorbed almost without a residuum, and which contains a not inconsiderable amount of the most nutritious substances. Seeland† compares the effect of Koumiss upon the blood to that which is produced by transfusion. In regard to the blood distribution it seems to be a not improbable supposition, that there are factors in Koumiss which produce an increased blood circulation (afflux) to the kidneys and to the skin. Dr. Stahlberg gives at least this explanation for the diminution of the mucous secretion produced by Koumiss, dependant upon the

* Medical Journal, d.Kriegsminister. T 39 (No. 2 Russian).

† Medicine der Gegenwart Januar, 1862.

antagonistic increased function of the before mentioned systems; because the increased irritation of the vasomotor centres necessarily changes the lumen of the vessels in certain districts, some of them becoming more permeable to the blood circulation. However this may be, so much is put beyond the possibility of a doubt by all previous observations, that medicine is in possession of no blood-restorer so speedy and sure as Koumiss, and therefore its employment is advisable in all those diseases which can be cured by the improvement of the bloodmass; that is to say, in such diseases in which a diminution of the solid blood ingredients exists. In this way we may derive the following indications for the diseases of the blood:—

1st. Anaemia or want of blood in all its various forms and with all its consecutive complaints.

A. Loss of blood.

B. Profuse discharges after confinements, lactation, surgical operations, diarrhoea, blenorrhagias, &c.

C. Disorders of digestion, assimilation, and sanguification.

D. Debility and exhaustion from long acute diseases, over-exertion, fatigue, protracted use of mercury, &c.

2nd. Chlorosis.

3rd. Scurvy.

4th. Hysteria and hypochondriasis in consequence, or as symptoms of anaemia.

5th. In the adynamic stage of acute diseases, typhus, pneumonia senilis, &c.

In all these morbid states Koumiss can be employed with the most brilliant success, and everyone may persuade himself by his own judgment that the greater the decay of strength has been, the more striking are the effects of Koumiss treatment. Now let us come to another group of diseases dependant upon an increased mucous secretion. In

this kind of disease the effect of Koumiss, says Dr. Stahlberg, is so sure and reliable, that up to the present time not one single author, physician, or enquirer has been found, who would have the slightest doubt about it; and it is more than probable that it is to this effect upon the mucous membranes that its enormous reputation as an anti-phthisicum is especially due. The diminution of mucous secretion is partly attributable to the antagonistic function of skin and kidneys, and partly to the Lactic Acid. This effect becomes apparent in chronic bronchitis almost during the first day of the use of Koumiss; the expectoration diminishes and becomes more fluid, at the same time the cough improves, and, simultaneously, the physical strength being restored by the improved nutrition and sleep, the disease gradually ceases altogether—slowly, but surely. We observe the same effect in intestinal catarrh or diarrhœa. Nausea and sickness, with the diarrhœa, disappear almost with the first glass or bottle of old Koumiss. The greatest number of observations are stated in chronic bronchitis or winter cough, and it is not more than six years since it began to be employed with an equal success in gastric and intestinal catarrhs. It was determined, as soon as its great usefulness in affections of bronchial and other mucous membranes was established, to employ it in phthisis, and good results were expected from it, the more so, because the other usual remedies gave so little hope of improvement or cure in that widely-spread disease. The opinion of the public in Russia is, *that if a remedy against phthisis exists in the world, it must be Koumiss*; and, in fact, the hopes of physicians and the public have not appeared deceptive or exaggerated. Koumiss till now has always acted beneficially against phthisis, how far, however, we shall see very soon. All authors, and among them Dr. Postnikoff,* of St. Petersburg, look upon phthisis from Laennec's point of view; but this has lately been abandoned as not corresponding to the researches

* Monographie ueber den Kumys, Samara (Russian), 1866,

of Pathological Anatomy, and a new theory has taken its place in modern medicine regarding the Aetiology of this disease. To Virchow* belongs the merit of having established this theory, which serves as a basis for further investigations, and to which Niemeyer has given, in his widely-circulated text-book of Practical Medicine, its proper value. We distinguish between two forms of Chronic Consumption—one depending upon the disintegration of morbid products of Chronic Pneumonia, and the other upon a Cachexia (bad state of nutrition). The former usually develops itself slowly, in consequence of an immense formation of cells which undergo, by pressure on each other, the necrobiotic process—that is to say, the so-formed caseous infiltration begins to exercise its destroying effect upon the lung tissue, &c. And in this way cavities are formed, which, however, have nothing to do with tubercle, except, perhaps, that a caseous deposit predisposes in a high degree to tubercle (secondary tubercle). The second form of Phthisis, the proper Tuberculosis, starts (Virchow) from the bronchial mucous membrane by a deposit of heteroplastic cells,† which show a great tendency to decay. This process, however (Niemeyer), never, or very seldom, takes place, unless caseous infiltration in other organs already existed before its appearance. The caseous infiltrations existing before tubercular formation are usually found in the lungs (products of Chronic Catarrhal Pneumonia), and the exudations, which occur after pleuritis or pericarditis are transformed into caseous masses, and in the same way the bronchial glands. Persons, whose lymphatic glands participate in the general delicacy of the tissues, and in their tendency to this profuse cell-formation, under the stimulus of inflammation, are said to be *Scrophulous*. True or proper tuberculosis is rare in comparison to Catarrhal Pneumonia; primary Tubercle is rare; and if authors are

* Virchow: Krankhafte Geschwuelste; Vorlesungen, B II., 2 haelfte 2-te Vorlesung.

† Colliery puts the beginning of the process in the capillaries of the alveoli, but in such cases the same process can usually be found, at the same time, in the vessels of the brain and of other organs.

speaking of cures of Tubercle of the Lungs in their various stages of metamorphosis, they may have had to deal rather with cases of Chronic Catarrhal Pneumonia; but these products, as we well know, are far from causing a fatal issue to the disease, because it is possible that the caseous infiltration may be absorbed (which, alas! seldom happens). More often, however, after an absorption of its organic ingredients has taken place, a residuum remains of the inorganic in the shape of calcareous concretions; and this may be stationary without endangering, in any special way, the further life of the patient. But even the decay of caseous masses does not absolutely cause death; because we very often see people with enormous cavities in the lungs live many years in a tolerable state. There is no doubt that such a state may be very dangerous, but the physician can, in these very cases, be of immense value in removing or keeping off from the patient every threatening circumstance by a proper treatment against the fever (which he may be able to lower) and the weakness, by raising the patient's strength with proper food: in short, an intelligent, rational physician may prolong for many years his patient's life; while, with the old school, a dull percussion beneath and below the clavicle almost signified death. Finally, cavities can heal by contraction and cicatrization, as has been proved by many *post mortem* examinations a long time ago. Now, the question is, in what form of this disease, and in which of its stages, can Koumiss exert its wonderful healing power?

To answer this properly, I ought to produce and refer to all the documents and facts of the different authors, which again would exceed my limited space. I, therefore, shall be as brief as possible, following in the main the views and descriptions of Dr. Stahlberg, whose intelligent observations limit the use of Koumiss to proper cases. First, he says—(all authors agree on this point)—that Koumiss acts more quickly and surely than the other remedies that have been previously applied, especially in the first stage of the disease;

but what is to be reckoned the beginning of Phthisis depends entirely in each case on the point of view of every single observer.

Prof. Traube* says:—"In all chronic diseases in which emaciation becomes extreme, two points must be chiefly considered: first, the treatment must be generally that against acute disease; but in the second place, we must endeavour to increase the weight of the body. The main difficulty consists, in very protracted chronic diseases, in introducing into the organism abundant nourishment, at a period when either the morbid process itself or its residua are still in existence. As a rule, it may be said: A. As long as the morbid process is still rapidly advancing, as we may know from the rapid extension of the physical signs, it would be dangerous to increase the weight of the body, even if it becomes apparently more emaciated. B. As long as the morbid process is at its height, where the fever is intense, the difference between temperature in the morning and evening small, the local pain persistently great, etc., it would not be advisable to oppose yourself to the rapid development of emaciation. On the contrary, however, we are compelled to nourish the body well with abundant food as soon as the emaciation is accompanied by pallor of the skin and of mucous membranes, by diminution of the tone of the arteries and their circumference by a temperature falling in the morning to the normal standard, or below it, and by cool extremities. These indications correspond so exactly to the powers possessed by Koumiss, that they seem to be established entirely for the proper Koumiss Treatment. And, in fact, no remedy will produce such a rapid effect as Koumiss, if used in diseases of the respiratory organs, which offer the character defined in such a masterly manner by Traube. Also in extensive cavities, when the morbid process has become stationary, we can still be useful to the patient with Koumiss; but Dr. Stahlberg says, in diffuse caseous infiltrations, which begin

* *Symptome der Respirations Krankheiten.* I. Berlin, 1867.

to soften in one or both lungs, he would be decidedly opposed to the use of Koumiss. The symptoms of this class of patients are: sallow colour of the face, emaciation, high pulse, fever (without any clearly pronounced remission during the day); and their physical signs are: dull percussion sound over a greater surface, bronchial breathing, small, fine crepitation, Ronchus and Sibilus; signs which give the impression of the presence of a viscid matter moveable only with great difficulty. In such cases, Whey, Salines, Milk, &c., would be more in their place, and their use is a more rational one. When the temperature does not sink, after the Koumiss Treatment, the weight of the body does not increase in the first ten or twelve days, and the colour of the face does not show any change to pink, it is necessary to stop the Koumiss, and alter the treatment. The best means of estimating the good effects of Koumiss are to weigh the patient both before and after the commencement of the Koumiss Treatment, and at every fourteen days' interval; secondly, the thermometer gives extremely valuable indications both as to prognosis and treatment. Spirometry has a twofold difficulty: first, the over-exertion produced by it may sometimes cause hæmorrhage in certain patients; second, unacquaintance with its use necessarily gives a smaller amount of lung capacity than the real one; afterwards patients become quickly accustomed to it and expert in its use, and therefore, at the end of six weeks, the number it indicates grows disproportionately large. Usually patients show an increase of about 714 C. Centimetres, of which Dr. Stahlberg reckons 250 C.C. as real increase, whereas the remainder may be attributable to the better exercise, or to the increased muscular power produced by the treatment.

Patients in the first stage of Consumption give the best results from the treatment with Koumiss; emaciation, fever, shortness of breath, the very tiresome and tormenting cough, and abundant expectoration, soon yield to the beneficial influence of Koumiss. They begin to diminish more and

more; and no other remedy would produce such an effect in the short time—from six to eight weeks! Diarrhoea and night-sweats, which separately or together complicate the disease, often exhaust the body very soon. Koumiss keeps up the strength of the patient in such cases, and often prevents this loss. The sooner Koumiss is had recourse to the more quickly are good results obtained, and the more durable are the advantages derived from the cure. Very little or no advantage is derived by those patients who never increase their daily allowance of Koumiss beyond three tumblers, which certainly proves that it is not the climate of the Steppes alone, but rather the great quantity of this beverage consumed, which is the chief cause of the benefit derived. Sleep also has a great share in the improvement of those patients, and they ought to yield to it as often as nature requires it. Hæmoptisis disappears regularly by the use of Koumiss. In conclusion, we see from all these that Koumiss takes the first rank in the series of remedies which have hitherto been in use against Consumption. It is not a specific against it, but its great success is merely due to the increased nutrition, and the diminution of the discharges, especially of the mucous membranes. Still, the effects are not yet sufficiently investigated, and many questions are open, and great blanks, as to the physiological efficacy (injecta, ejecta, chemical and morphological investigations, microscopical researches) are to be filled up. It is certain that Koumiss may be employed largely in many other diseases; for instance, in *diabetes mellitus*, where it seems to act very beneficially as a general valuable nutriment, and possibly as a ferment, which decomposes the sugar into alcohol and carbonic acid, especially the old Koumiss, in which nearly all the milk-sugar is decomposed, and the taste, therefore, is decidedly sour; and in this consists its advantage over the Milk Treatment, which has lately been praised so much. But further experiments and investi-

gations are required to solve all these questions, which are of such great importance in medicine. In any case we may be sure that, with necessary precaution, we can never do harm with it.

To sum up the therapeutical use of Koumiss, on behalf of its indications and contra-indications, we can say it is indicated in :—1, Anaemia; 2, Chronic Catarrh; 3, Chlorosis; 4, Chronic Phthisis; 5, Scurvy; 6, during Convalescence from long Acute diseases, Chronic Discharges, Suppurations, Hæmorrhages &c.; 7, in the adynamic stage of acute diseases; 8, Dysmennorrhoea; 9, Scrofulosis, Hydræmia, Leucaemia, &c.; 10, Hysteria, Hypochondriasis, Nervous Debility, &c.

The contra-indications are :—Certain Organic affections of the Heart, the Vessels, Nervous Centres, Kidneys, Liver, Stone in the Bladder, Apoplectic habit, and Plethora.

As the articles on Koumiss, by Dr. Grieve and other English writers, are contained in books now out of print, and therefore difficult to access, I think it advisable to subjoin here one or two of the cases which they narrate, in order that those who are unable to consult these original papers, may have before them some of the facts which induced those writers to bestow such eulogiums on Koumiss.

Dr. Grieve, speaking of the medical virtues of the Koumiss, continues :—“ I judged that a preparation of milk, which would not be curdled by the juices of the stomach, while, at the same time, it possessed all the nutritious qualities, with the superaddition of a fermented spirit, might be of essential service in all those disorders where the body is defective in nourishment, for in strength. The case of the above-mentioned Russian nobleman gave me an opportunity of trying how far my conjectures were well founded. He was in that state which seemed to me strongly to indicate the use of such a medicine as Koumiss. I accordingly advised him to it.

“ At twenty-six, he laboured under a complication of chronic complaints. A confirmed Lues Venerea, injudiciously treated with three successive salivations by mercury, added to bad management of himself under these, had given rise to his disease. His body was much emaciated; his face was of a livid yellow colour; his eyes were sunk, and round his eyelids there was a dark shade; he felt a severe pain at his breast, and that was accompanied with a considerable cough and mucous expectoration; his appetite and digestion were greatly impaired; he had frequent tremblings and faintings; he began to feel the symptoms of hectic fever: in a word, his whole appearance was consumptive, and he was so weak, that he required assistance to get into the carriage in which he was to be conveyed into Tartary. After drinking Koumiss six weeks only, he returned perfectly free from all the above symptoms, and was become so plump and fresh-coloured, that, at first sight, it was with difficulty his friends could recognise him. As he did not come immediately to Nischne-Novogorod, where I then was, he wrote me a letter, the substance of which, as far as it relates to the subject, I shall give here. After telling me the sudden and remarkable change the Koumiss had produced during the first few days;—that he ceased to be disturbed in his sleep; that his nervous and dyspeptic symptoms left him; that he felt as if his vessels had been distended with a fresh cooling liquor; that he became cheerful; that it served him both for food and drink; that, though he used it to the quantity of a gallon and a half, and sometimes even more, in the twenty-four hours, yet he always drank it with pleasure, and without intoxication; that his body, during its use, was regularly open; but that his urine was so much increased, that he was usually exerted to make water every hour;—he proceeded to express himself in the following strong terms, which serve to show how much he had profited by it:—

“ ‘I am disposed to consider Koumiss,’ says he, ‘with all deference to you, as a universal medicine, which will cure every disease, if you do not choose to except fever ; for I am persuaded that the most skilful physician, with all the drugs of the shop, could not have restored me to the health I now enjoy.’ ”

“ The next case on which it was employed, though not so desperate as the former, gave sufficient proof of its nutritive and strengthening qualities. A lady, who had been witness to its uncommon efficacy in the nobleman’s case above mentioned, was encouraged to try it in her own. It was not convenient for her to go herself to Tartary, and therefore she had it sent to her, well secured in casks, during the autumn. She had been subject to a train of nervous disorders. By these she was much extenuated, and reduced to a state of extreme weakness and irritability. She used it for about a month, at the end of which time the functions of her nervous system were restored, and, with health and vigour, she acquired a plumpness and ruddy complexion. ”

“ The following year, I resolved to try it in Nischne-Novogorod under my own eye. As mare’s milk could not be obtained in sufficient quantity in town, it was made at the seat of a nobleman, not far distant from which it was occasionally transported. The season was far advanced, however, before a case was presented, in which its efficacy might be tried. At last—about the middle of August—I was consulted by the General Governor’s nephew. He had all the symptoms of incipient phthisis ; pain of breast, dry cough, occasional hæmoptisis, and great emaciation ; he was not, however, become hectic. His two elder brothers had died of true pulmonary consumption. He had taken much medicine in a different part of the country, and had observed a very strict antiphlogistic regimen ; but though milk had constituted the greatest part of his diet, yet there were no signs of recovery. He drank Koumiss for about

two months only, and that in rather an unfavourable season ; but the consequence was, that all the above symptoms disappeared, and his flesh and strength returned ; nor was there any reason to apprehend a relapse at the time I left that country. About the same time, I advised its use to another young nobleman, who had laboured under an abcess in the left side, about the region of the twelfth rib. As he had then resided in a remote part of the country, no attention had been paid to it ; on the contrary, by improper application, the sides of the ulcer were become hard ; he had lost his flesh and strength ; he had occasional faintings ; and there were all the appearances of incipient hectic. By the use of Koumiss for about six weeks, proper chirurgical dressings being at the same time applied, his health was perfectly re-established."

These are three of Dr. Grieve's more interesting cases, but there were many others, in which he employed it with equal success.

From all these facts Dr. Grieve draws his conclusions, (we must not forget in what year [1784] it was written, and the corresponding position of medical science.) I think all my readers will more or less go hand-in-hand with him. I give them in his own words. "From all these circumstances," says Doctor Grieve, "I think myself entitled to infer that this wine of Mare's Milk, or Koumiss, may be applied to many of the purposes of medicine. From the mild acid which it contains, may it not be considered as a cooling antiseptic ? From its vinous spirit, may it not become a useful stimulant, cordial and tonic ? And, from its oily and mucilaginous parts, may it not prove a valuable article of nourishment ? If chronic diseases, as is generally allowed, depend on a debility of the solids ; and if they are difficult of cure, because the organs which ought to supply the body with nourishment and strength, do not only themselves partake of the general weakness, but are too often, by the indigestible nature of the food with which they are

overchargéd, still more debilitated ; may not a substance of easy digestion, which at once strengthens the stomach and nourishes the body, become a powerful remedy in all such cases ? And if acute diseases, especially of the febrile kind, are frequently attended with symptoms of weakness and putridity, may it not be found, from its antiseptic and tonic powers, to be a useful corrector of the one, and restorative from the other ? May not the sudden change it produced, in the first case, in the state of the patient's feelings, and especially of his sleep, point it out as of use in all cases of *excessive irritability* ? May not the effect it had in restoring his stomach to its functions, recommend it in dyspepsia ? and may not the vigour and plumpness, which ensued from its use, indicate it in cases even of confirmed atrophy ? Have we not reason to believe that it may be used to advantage in the cure of *nervous disorders* in general, from the manner it operated in the second case ? And in the incipient, *perhaps even in the advanced stages of phthisis*, from the rapid and effectual change it occasioned in the pulmonary symptoms of the third ? And may not its efficacy in the fourth case encourage us to employ it in all cases of suppuration or ulcer, in which the body is threatened with *hectic fever* ? Whether all these questions can be answered in the affirmative, must be determined by future experience."

The next cases, bearing upon Koumiss Treatment, I extract from a paper, which also is out of print — *The Magazine of Domestic Economy*, Vol. III., 1837. The article, written by one of its staff of clever correspondents, is worth perusal, and has also produced some letters of its readers or subscribers, full of admiration and anxiety to have some further information about the Koumiss and its application, and who would, perhaps, be able to prepare the desired Koumiss in this country, and where it could be obtained ; but all those letters remained till up to the present time unanswered, although the editor hoped to have shortly

the opportunity to say something more on the subject. To-day the public has this opportunity in London itself, and may be enabled to judge for themselves.

The writer of that article in the Magazine, says:—"Since the death of Dr. Grieve, no notice has yet been taken of the Koumiss by the Faculty of Medicine. I had entirely forgotten all my extracts from Dr. Grieve's letter, when a circumstance, which lately occurred, suddenly brought them to my recollection, revived the interest I formerly felt on the subject, and induced me, as a duty, to publish the information I have been able to gain concerning the properties of Koumiss; and it is entirely owing to the accidental circumstances of the arrival from Russia of three friends of mine, a lady and two gentlemen, who have visited the banks of the Volga, the Country in which the Koumiss is made, and whose lives have been saved by its agency. This has led me to wield my humble pen in order to proclaim its virtues, so far as I am able, and induce persons in this country to make a trial of its medicinal properties.

"The elder of these persons is a man forty-seven years of age. Having led rather a dissipated life during his youth, which necessitated several courses of mercurial treatment, and having indulged rather too freely in wine and ardent spirits, during a period of ten or fifteen years, his health, when he left England upon important mercantile business, was so much impaired, that his friends never expected he would return. His symptoms very much resembled those described by Dr. Grieve as affecting the Russian nobleman. His body was fleshless and extenuated to an extreme degree; his skin was of lead colour—the real hue of death; his blood appeared stagnant; he could digest nothing; he had dreadful chronic rheumatic pains in his bones; his stomach refused to perform its duties, and his body was covered with sores and blotches. To these afflictions were added several distressing infirmities. In this state he reached St. Petersburg, where he met the other two individuals whom I have mentioned.

These were a brother and sister, the one twenty-four, the other nineteen, both afflicted with that bane of our climate, Pulmonary Consumption. In their family the disease was hereditary: it had already robbed them of four sisters and a brother. The vampire had already struck its fangs into their hearts, and was gradually draining their young blood. They were orphans, and, being fully impressed with the fate that awaited them, were travelling over Europe. Both resolved never to marry, and thereby perpetuate among their descendants the fatal disease which seemed ready to cut them off ere the bud of life was well blown. A desire to see Russia led them to St. Petersburg, where they arrived in the summer of last year (1836). A very few days after their arrival they heard, from a Tartar servant who had but lately entered their service, of the extraordinary virtues attributable to the Khoumese, or wine, made from the milk of the Tartar mare. Struck with what this man told them—which was confirmed by several Russian nobles to whom they had letters of introduction, and having a desire to visit Tartary—they resolved to go thither, less from any hope of benefit from the use of the Koumiss than from curiosity to see the country. Meanwhile, they had been joined by Mr. D——, the gentleman I have already mentioned, and with whom they had been acquainted in England. He agreed to accompany them in their tour, under a strong presentiment, as he informed me, that he should recover his health.

“It is not my province to follow them in their travels; these will, perhaps, be given to the world by themselves. My task is to state only the facts which they have related to me concerning the benefit they derived from the use of the Koumiss. Mr. D—— took at the rate of two gallons a day. On the very first day he felt its favourable effects. He describes the action as that of a generous and, at the same time, cooling liquor, which seemed to penetrate through all the blood-vessels of his body, producing a sensa-

tion of tranquility and happiness which he could not have deemed possible in his state of body. As he went on, his health improved day by day. After the first fortnight, all the distressing symptoms of his complaint had disappeared. The vigour of youth seemed imparted to his whole system, and before the first month was elapsed, he felt a continued vivacity of mind and elasticity of frame, which led him to seek bodily exercise in spite of himself. At the expiration of two months he was in a state of the most robust health, plump, full flesh, and displaying the ruddy complexion of youth. He, however, continued to take the Koumiss during another fortnight by way of precaution.

“The effects upon the brother and sister were not less favourable than upon Mr. D——, and the eradication of their dreadful disease was equally prompt. Certainly they were not in the most advanced stage of the complaint; still, it had gone far beyond its incipient period. The brother consumed about a gallon and a half of Koumiss per diem; his sister, one gallon. After the first week, all symptoms of cough and fever had left them. A liquor seemed to flow through her veins, which appeared to reconstruct the whole animal economy. The strengthening and exhilarating effects of the lacteal wine naturally led them to bodily exertions, and Mr. D—— very properly advised them to pursue a course of gymnastic exercises, which, under the influence of the Koumiss, seems to have had the effect of considerably expanding their chests. In their present state they seem fleshy, muscular, and broad-chested, quite the reverse, in short, of what I knew them two years ago. They describe the taste of the Koumiss as being far from unpleasant, being a slight acid combined with sweet, forming a very palatable drink. Shortly after it is taken there is a glow through the regions of the chest and stomach, and an agreeable thrill seems to steal through the whole frame. After a few days the veins of the skin appear swollen, but without any sensation of fulness or heat; on the contrary, the body

seems to have acquired tenfold elasticity. During the time they took this wine they felt no inclination for food; and though their meals were regularly prepared, they scarcely ever touched them.

“ I have described this preparation in glowing colours. It is true; and I sincerely believe what I have advanced. The sight of persons in the most robust health, whom I had myself seen standing on the brink of the grave, is a fact so strong to my senses, that the interest with which Dr. Grieve's statements inspired me many years ago has not only been revived, but brought with it a strong conviction. My object in writing this paper, however, is not to try to force my own belief upon my readers, but to induce inquiry; to persuade medical men and others to try the milk-wine and its effects upon all complaints which have their origin in debility. Perhaps this may confer a great benefit over Mankind.”

To the reasons before mentioned by Dr. Grieve—Why Koumiss required a long time before it was better known in the west of Europe—we may fairly and properly add that the public had always a certain deeply-rooted unfounded antipathy against fermentation of animal matter; further, a great inclination was manifested to shrug the shoulders whenever conversation fell upon the point, that the nomadic inhabitants of the Steppes of Russia nourished themselves during the summer months, by preference, almost exclusively with fermenting and fermented mare's milk; which habit and preference for Koumiss they declared to be a proof of their want of civilization. Finally, it may also have been bearing upon this point of differed employment of Koumiss in Europe, and account in some degree for it, that of all the kinds of milk, mare's milk alone could pass into vinous fermentation of its own accord; meanwhile, in a milk, rich in cheesy matter, butter, and poor in milk-sugar, as

ass's, cow's, and goat's milk, this process never occurred of itself, and could only be produced artificially. Lastly, many experiments in producing milk-wine may have been made, but failed completely; and on the other hand, the strongly pronounced prejudice of the panegyrists of Koumiss—that the Koumiss is a remedy limited to one spot only, by the proper climate and the peculiar vegetation in the Steppes—may have greatly contributed to make it altogether very doubtful, from the first moment, that it would be possible to prepare an effectual Milk-wine in other parts of Europe also. It is not difficult to see why we are generally unable to produce Koumiss from mare's milk in Europe, which is so scarce and dear, that we are driven to make it either from ass's, goat's, or cow's milk, which are more commonly employed here. The easiest way would be to make it from ass's milk, which is nearest in its chemical composition to mare's; but in this country this could only be provided at a great expense, as two asses, which give a quantity corresponding to that of one mare, would be necessary in order to provide the amount of Koumiss required for one patient. But we may, perhaps, hope that when public opinion is thoroughly convinced of the great benefit of Koumiss, that the great studs in this country will not only serve the purpose of cultivating and improving the breed of horses, but that of affording, for the benefit of suffering humanity, a genuine mare's-milk Koumiss; and this end, of the highest practical value, might be obtained without in the least interfering with the previous object for which the studs are kept up. An example has been set by the Russian Government, which has, at his own expense, provided mares from the Steppes for several Koumiss Establishments throughout Russia, in order to spare the sick the trouble and expense of a journey to Tartary, and afford a means of cure to such as were unable to undertake it. And what an advantage to the English Public would such an establishment be in the Isle of Wight, where the delightful

climate lends its aid, and gives to Koumiss every chance of restoring the patients who resort there!

It is impossible to state what quantity of Koumiss it may be advisable to take at first, as the greater or less weakness of the patient, his constitution, and the nature of the disease, must be taken into account. The daily dose in the beginning of the treatment ought never to exceed one bottle, taken a glass at a time at more or less distant intervals; the following days two or three glasses extra should be taken. A greater quantity, however, should be taken in the forenoon than in the afternoon, and the time from 12 to 4 o'clock ought to be devoted exclusively to dinner and sleep. The dinner (if required at all) may consist of beef tea and fish, or meat (except pork and goose). Where a tendency to constipation exists, fruits may be taken, and in the morning a glass of fresh milk, or a bottle of soda water the night before; but where there is a tendency to diarrhoea or relaxation of the bowels, milk, fruits, vegetables, &c., are to be scrupulously avoided, and an older sort of Koumiss should be taken. At dinner time a wine-glassful of Wine (2 ozs.—claret excepted) may be taken, or some good beer; at supper (if required) a chop, cutlet, or roast meat. Tea, coffee, and alcoholic stimulants should be generally avoided. Cold bathing is very dangerous, but warm sponging once a week will be useful. In order to avoid local congestion of important organs, after the use of Koumiss, the patient should take as much exercise as possible, without fatigue. During the treatment (from five to six weeks) the patient should keep himself warm, according to the weather, and protect himself from cold winds; and exposure to draughts, wet feet, &c., are anxiously to be avoided. In bad weather the patient ought always to remain at home, and take exercise in large well-ventilated rooms, the same as in winter; but

in good, fine weather open air should be breathed as much as possible. Regarding, again, the amount of Koumiss to be taken, it may soon be left to the patient himself at will, and he soon finds out how many bottles he may take daily. Fullness in the stomach, or the necessity of taking it mouthful by mouthful with a certain constraint, indicates that it is better to stop drinking for the time being. Sickness and painless diarrhoea during the first ten days occur in some persons, but cease on their own accord and never require any treatment. On the contrary, the most delicate persons very soon grow accustomed to it, so that a tolerance will be established, which is often suddenly followed by the greatest benefit. Sickness after Koumiss may be relieved by taking some brown bread with salt after each glass, till all feeling of nausea has disappeared. Movement, after each glass, in open air, or, in winter, indoors, is advisable; but a patient should never be compelled to move when he requires rest. Patients confined to bed may take about six tumblers full daily, but not more. Finally, it ought to be mentioned that the employment of Koumiss does not interfere, in the least, with any other course of treatment that may be adopted for the more speedy cure of diseases, especially local ones; it would, besides, be very beneficial, and give much more satisfactory results, if the patients, especially Consumptive ones, instead of subjecting themselves (as is usually done) to a six weeks or two months' course once a year, would do so twice or thrice in the same year to one of four or six weeks' duration. A residence in a warm climate, would, no doubt, increase the benefit derived from the use of Koumiss, especially in an advanced stage; but it is better for patients, who cannot afford to reside for a moderate time in a foreign climate, or to obtain all the conveniences they require, to submit themselves to a Koumiss course at home, with all the advantages which they can here readily command, in order to obtain, with greater certainty, an ultimate cure, or the prolongation of their life.

In order to obtain the desired result from the treatment, it is necessary for the patient to obey the following rules:—

1. Every serious, fatiguing occupation ought to be given up, all exciting scenes, violent emotions avoided, and quietness to be procured.

2. The patient may either *live entirely* upon Koumiss, or if a desire for solid food is felt, then easily-digestible meat nourishment should be given; if other drink is required, some water, very weak tea, or beer, in moderate amount, may be given.

3. The air should be pure, and in summer the patient should be as much as possible in the open air and sunshine; in winter, in warm and well-ventilated rooms.

4. However often the desire for sleep should be felt, it should always be at once yielded to, and nothing ought to interfere with the patient's sleeping as long as he likes.

5. Whenever the Koumiss is used it must be previously agitated, so that all its component parts may be well mixed and taken together. If placed in a cool cellar, it will remain good between three and four months, although its taste becomes stronger and sourer.

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In order to obtain the desired result from the treatment, it is necessary for the patient to obey the following rules:

1. Every emotion, including occupation, ought to be given up, all exciting scenes, violent emotions avoided, and quietness to be preserved.
2. The patient may either lie down upon his back, or if a doctor for some food is felt, then easily-digestible food, nourishment should be given; if other drink is required, some water, very weak tea, or beer, in moderate amount, may be given.
3. The air should be pure, and in summer the patient should be as much as possible in the open air and sunshine; in winter, in warm and well-ventilated rooms.
4. However often the desire for sleep should be felt, it should always be at once yielded to, and nothing ought to interfere with the patient's sleeping as long as he likes.
5. Whenever the kidneys are used it must be judiciously regulated, so that all the component parts may be well mixed and taken together. If placed in a cool cellar, it will remain good between three and four months, although its taste becomes stronger and more.
6. If the patient is unable to sleep, he may take a small dose of the medicine, and if necessary, a larger dose.
7. If the patient is unable to sleep, he may take a small dose of the medicine, and if necessary, a larger dose.
8. If the patient is unable to sleep, he may take a small dose of the medicine, and if necessary, a larger dose.
9. If the patient is unable to sleep, he may take a small dose of the medicine, and if necessary, a larger dose.
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