

diet of nursing mothers, have without doubt helped to build up the racial resistance to their national inheritance, syphilis and tuberculosis.

In the case of tuberculosis this resistance is so efficient that even the child of a tuberculous mother, fed on what might be supposed to be tuberculous milk until the sixth year, in the majority of cases remains unaffected. Now, if a tuberculous cow's milk transmits the disease to the human organism, why should not this tuberculous mother's milk transmit it? Even we do not object to the suckling done by our own tuberculous women, which indeed extends generally over but one year, yet their offspring, for the most part, are unaffected by the disease, at least in childhood; now it is more than likely that, if there were a contagion through milk, its effects would be apparent in the children. All these benefits would, of course, be cut off by the substitution of a foreign element to the natural means of transmission.

While I was in Japan, I conceived an idea quite satisfactory, at least to my own mind, of the manner in which the iodized food renders its great service to the Japanese race. It is generally supposed that the contagion of tuberculosis is communicated by the inhalation of particles of dried sputum disseminated in the air. It is my firm conviction that this is not so. I believe that these germs of disease are swallowed with the saliva, and alter the nutrition through the chyle and mesenteric glands. In an organism fed directly or indirectly by iodized substances, the poison meets and is neutralized by its own antidote. The Japanese mother, as by an instinct, never kisses her child on the lips. Indeed, the whole institution of kissing (except in the sexual act) is practically unknown in Japan. It is even formally condemned because the Japanese know that the kiss is the carrier of tuberculosis and syphilis. I have no doubt but that the caresses of the sick have added enormously to our own statistics of tuberculosis, and have caused much of the mischief which Dr. Brush would attribute to cow's milk.

I don't know whether the following has struck any other observer, or if I am the first to call attention to it. There is another, an occult and insidious danger which Japan escapes by letting cow's milk alone. If they drank it as we do, it is very probable that they would drink it as we do, *volentes volentes*, mixed with a nobler fluid. Now, thanks to the rice plantations, the water of Japan is by no means the best of things; it is even the worst, for it is pregnant with typhoid germs, being continually polluted with human excrements and swarming with the brood of the distoma. Total abstinence from cold water, an inverted teetotalism, has been the salvation of Japan. Water is only drunk boiled with tea; the boiling kills the typhoid germs and the eggs of the distoma.

THE ETRUSCAN RITUAL BOOK.¹

BY DANIEL G. BRINTON, M.D., LL D.

THE discovery by Professor J. Krall of the fragments of an Etruscan book, written in the time of the Ptolomies, and preserved in the swathings of an Egyptian mummy, is an epochal event in archaeology and cannot fail to excite the liveliest interest in learned circles. It has just been issued by the Vienna Academy of Sciences, and in a manner entirely satisfactory to the most exacting criticism. The mummy bands on which the inscription is written are reproduced photographically with the greatest care, and the judicious text and commentary by the editor are just what are needed, and no more than are needed, to place all the material for a thorough study of the document in the hands of the reader.

The circumstances of the discovery of the mummy and the inscription have been already briefly referred to in *Science*, Sept. 23. The first who noticed the writing was Professor Brugsch, in 1868; but he did not recognize it as Etruscan; nor did Captain Burton, who published a portion of it in 1879, although that versatile writer was the author of a book on Etruscan remains. Professor Krall, in February, 1891, was the first to make this remarkable identification.

¹ Die Etruskischen Mumienbinden des Agramer National-museums. Beschrieben und herausgegeben von Prof. J. Krall. Wien, 1893. In commission bei F. Tempsky.

The original condition of the book can be restored from its fragments. It was written on a piece of linen, at least 3.50 meters long, by 35-40 centimeters wide. The writing was in columns, so that when the linen was rolled, by unrolling it moderately, one such column, about 25 centimeters wide, could be commodiously read. The writing was done with a reed, and with ink made from carbon, like that which we know as "India ink," and which was usually employed in ancient Egypt. The letters were firm, clear and regular, plainly the work of a skilled calligrapher. The alphabet is that of a high class of Etruscan literature,—quite apart from those degenerated forms which are found in northern Italy. It is probable that the original roll was longer than the fragments indicate, and therefore that they only represent a fraction of the original work.

The linen on which the book is written is of Egyptian manufacture. But as at the date of its preparation Egypt supplied much of the Mediterranean world with the products of her looms, this does not prove that it was written in Alexandria. The question must be left undecided; but there is nothing else Egyptian about the scroll. The text contains no names of Egyptian gods or personages and no sign of foreign influence. It is wholly Etruscan in language, proper names, and general character, and at most may have been an Egyptian copy of an original brought from some Etrurian city.

The text offers twelve columns of about twenty-five lines to a column, six or seven words to a line. A number of the lines are incomplete, others are lost; but enough remains to offer an excellent apparatus to study the language. There are a number of repetitions, as of set phrases, and at the beginning of several paragraphs the Etruscan numerals are found, applied always to certain words of frequent recurrence. The names of various Etruscan divinities, as Nethunsl, Tinsin, Thesan, Usil, Uni, etc., are repeated, indicating clearly that this is some kind of a religious work. Professor Krall pronounces it a ritual to set forth the character and number of offerings (*Opferritual*). From certain arrangements noticeable in the text, I think rather it belongs to the class of works on divination, for which the Etruscan haruspices were so famous.

Something may be added to show the exceptional value of this find.

There is no greater mystery in the whole of European antiquity than that which surrounds the Etruscans. Niebuhr once said that he would willingly part with a large part of his fortune to be able to identify their ethnic relations. Up to the present time, this has been impossible. Not a single theory has been offered which has proved acceptable. Some of the ancients maintained that the primitive Etruscans came from Asia Minor; Virchow has written an article tracing them over the Alps toward the north-east; Dr. Isaac Taylor wrote a book to prove they were "Turanian;" Burton, in his "Etruscan Bologna," tore Taylor's hypothesis to tatters, but did not have better success with his own; and so on with an endless chain of attempted identifications.

The uniform tradition of the Etruscans themselves was that their ancestors came by sea to the shores of Italy, and landed first on the west coast, approximately about 1200-1300 B.C. Thence they extended over central and northern Italy as a conquering race, developing a remarkably high civilization, and finally succumbing to the Romans on the south and to the Celtic and other barbarous tribes on the north. They had settlements as far as the Rhetian Alps, and I have seen in the Museum of Chur, in Switzerland, tombstones with inscriptions in the Etruscan character from that locality. It is true, however, that this is not conclusive evidence; as it is quite certain that some inscriptions in this alphabet are not in the Etruscan language. Their alphabet was adopted by the Veneti, an Illyrian people, and also by the Celts, both of whom wrote in it their own tongues, or at least employed it in their mortuary inscriptions. As the matter now stands, in spite of our possessing over five thousand Etruscan inscriptions, some of considerable length and others bilingual, I do not hesitate to say that there is not a single word whose meaning we positively know.

A true Etruscan inscription was discovered some years ago on the island of Lemnos, in the Ægean Sea, showing that this sea-

faring people had extended their journeys, if not their colonies, to that comparatively remote quarter. This interesting relic has been ably worked up by Professor Pauli, who may be said to be at the head of living Etruscologists.

About the time that the Etruscans settled in Italy, a people of closely similar name, the Tursha, appear in Egyptian history as bold invaders and daring warriors. They are mentioned in the inscriptions of Meneptah II. and Ramses III., and by most writers are considered of the same stock as the Turseni, Tyrrheni, Tursci, or Etruscans. They were allies with the Libyans, and entered the Fayoom with these in the Ramesside period from the Libyan territory to the west. Professor Krall accepts this identification, but adds the cautious and just remark, that we have no positive knowledge of the language spoken by these Libyan neighbors of Egypt at the time mentioned. Of course, if they were the Tursha, and these were the Etruscans, we should see our way much more clearly.

CREMATION OF CHOLERA CORPSES.

BY ALBERT S. ASHMEAD, M.D., NEW YORK.

LET me add a few words to the article of mine, entitled "Cremation of Cholera Corpses," which you published Sept. 2.

I said in the *New York Tribune*, Sept. 22,¹ that religious prejudices should not interfere with the enforced cremation of cholera corpses.

This is what Professor Stillé writes to me about the subject: "In regard to cremation, I have no doubt of its being the proper way to dispose of the dead, and that it originated, as all sanitary laws did, not in divine command, but in human wisdom derived from experience.

"If the Egyptians had possessed fuel, I have no doubt they would have burned their dead, and that the Jews would have followed them in this as in most of their sanitary laws, e.g., circumcision, unclean meats, etc. Of course, with Greeks, Romans, and Christians the doctrine of the resurrection of the dead (most distinct, of course, in the last) led to the preservation of inhumation.

"There are many persons even now who believe in the literal resurrection of the actual body, albeit they are at a loss to give a reason for this popular belief. After all, I doubt if cremation of the dead will become usual. Superstition will hinder it among the ignorant, and tenderness among the refined."

There are in the history of the treatment of infectious and contagious diseases three periods.

1. There was a barbarous period when every, let us say, leper, was considered as outside of the pale of humanity, without any right to the sympathy of his fellow-men, only not killed because there is a law of the Decalogue against killing. The leper, as we

¹ TO THE EDITOR OF THE *Tribune*: No more salutary measures have ever been taken against the spreading of cholera than the burning of the cholera corpses at Swinburne Island. It is evident that as long as the bacillus has not been entirely destroyed it will live to fight again. However deep it may be buried, at some time it will reach the surface again, get mixed with the water we drink, and cultivate itself in the human body. Why then should a measure so necessary for our safety be limited to such uncared for bodies as those who are found on vessels stationed at quarantine in the bay? The same danger threatens us from the bodies of those who die in the city. There is no use in saying that they will be buried in metallic coffins. Metal may keep the enemy in harmless seclusion for a longer time, but not forever. Moreover, metal renders the process of putrefaction slower, and keeps the bacillus which feeds on the corpse longer alive. There is probably no difference in regard to the danger arising from buried germs, whether the corpse be buried in wood or in iron. Therefore, it is evidently a duty of a board of health which cares truly for the public welfare to enforce cremation of all cholera corpses in the city as well as on the ships. Religious prejudices can really not interfere with that; the body reduced to ashes can resuscitate as well as the body buried, for it is clear that any corpse long before the general resurrection of the dead will be reduced to a condition entirely similar to that which cremation brings about. Or, if it is only the routine of the ignorant that stands in the way, it is the right and the duty of the educated and learned to impose by law and by force what is necessary to the welfare of the whole community. If we must bury our corpses, let us at least bury them in the most rational way possible. Wood decays, iron rusts or bursts, but earthenware jars are absolutely impermeable, and even indestructible. These have been used for more than a thousand years by the royalty and higher classes of Japan, and as we are, just now, teaching the Japanese so much, it is only fair that, when they are entirely in the right, and have given a great deal of thought to the matter, they should teach us something, too. They put vermillion with the cadaver; we might use bichloride of mercury.

have chosen him as the representative of this class of wretches, was condemned to solitude, absolute isolation; if he came by chance within hail of any fortunate healthy brother or sister, he had to ring a bell which he was obliged by law to always carry about him, in order to let them know that somebody was approaching who had no right to approach his fellow-being, and whose presence was an involuntary menace of death! These men were utter outcasts, enemies to be kept off as wild beasts are, completely neglected; when they were found dead, their carcasses were buried—that was the only duty which society performed in their behalf.

2. The second may be called the Mediæval-Christian period. Then something was done for them, in fact everything which those dark centuries knew how to do. *Misericordias* were formed, societies of St. Lazarus, etc. Asylums, hospitals were established. Of course, the greatest service the men of that time thought that they could render their unfortunate brethren was—prayers, the ceremonies of religion. For the ætiology was—visitation of God, punished sin, etc. In a time of epidemic the sanitary measures consisted in holy processions with banners flying, crosses, candles, holy-water; also relics, such as the seamless coat of Treves, a thousand ugly images of the Virgin meeting the traveller at every step. Have not we seen here in New York thousands kissing a bone?

3. The third period is the age of reason, the sanitary period, when superstition, ignorance, and fanaticism must be kept in check, brought to bay, utterly ignored, in every question of public health. We know now what we have to do; there is no excuse for not doing it. If, with the knowledge we have, we pander to the ridiculous pretensions of those who stupidly try to keep up the régime of the Middle Ages, we are simply criminal.

SOME POINTS IN CHRONOLOGY.

BY R. W. MCFARLAND.

THE difficulties met with in chronology are best understood by those who have given most attention to the subject. In ancient times each nation was a law unto itself, touching the method of counting time or registering great events.

The Egyptians, several thousand years B.C., knew that the year was very nearly 365½ days. They, however, dropped the fraction and retained only the whole number. It is said on good authority that this error of one-quarter was allowed to remain, so that by losing one-quarter of a day each year the seasons would slide forward around the whole heavens in 1461 years. By this slow motion of the seasons through the year, the festivals of the gods in like manner would be celebrated in all the seasons, to the end that all the gods should be honored equally and in exactly the same way.

The Roman calendar was amended by Julius Cæsar, 46 years B.C., with and by the aid of an Alexandrian astronomer. We use what is substantially the Roman calendar. It would not be proper in this place to enter into an explanation of the minutiae of many points in doubt or in controversy. The immediate cause of Cæsar's reform was the vicious habit of the pontiffs in calling out or proclaiming the beginning of the months in such a way as to serve political ends or emergencies. Of course most people who are conversant with the derivation of words know that the word "calendar" is from the Latin *calare*, to call, or to proclaim. As a consequence of the reformation by Cæsar, the year 46 B.C. was made to consist of 445 days, and is sometimes known as the year of confusion. The year 45 B.C., the first of the reformed calendar, coincided in the main with the year 708 of the city of Rome. This is the Julian calendar which was followed in general by the Latin Empire, and was naturally adopted by the various nations after their incorporation into the Roman dominions. The old Egyptian year of 365½ days was merely transferred to a more northern region, and into a far wider territory. It was not till long after the conversion of the Emperor Constantine to Christianity in the year 320, viz., in the early part of the sixth century, that the proposition was made to count the assumed date of