

COMMENTS ON VACCINATION IN THE FAR EAST.

BY EDMUND M. H. SIMON.

A SHORT time after I had paid a visit to the International Exhibition of Hygiene at Dresden in 1911, where I had seen in the excellent Japanese Section some instruments used in ancient times in Japan for the medical treatment of smallpox, and also a number of books and pictures treating the question of the introduction of vaccination into the Country of the Rising Sun, I happened to read an article written by Berthold Laufer concerning the same subject.¹ Supported by some statements from the official catalogue² and by a small pamphlet published in German on this occasion,³ I may add some remarks to those already offered in Dr. Laufer's article.

According to Japanese statements the first credible record of an epidemic of smallpox in China dates from the Tsin Dynasty (265-419 A. D.)⁴ The first description of the disease is found in a medical book *Chou-hou-fang*, written by the physician T'ao Hung-ching in the Liang dynasty (502-556).⁵ Further, the *Ping-yüan-hou-lun*, published by Ch'ao Yüan-fang in 601, dealt with the symptomatology of smallpox.⁶ During the Sung dynasty some special works on smallpox were written which also found their way to Japan. In the second year of the Japanese era Shōō (1653), a Chinese physician Tai Man-kung arrived in Nagasaki who published

¹ Berthold Laufer, "The Introduction of Vaccination into the Far East," *The Open Court*, Vol. XXV, pp. 524-531.

² *Katalog der von der Kais. Japan. Regierung ausgestellten Gegenstände*, Dresden, 1911.

³ *Vakzination in Japan*, Dresden, 1911.

⁴ We regret that no exact details are given as to where these records are to be found.

⁵ *Vakzination*, p. 1.

⁶ *Ibid.*

a book *Ta-chi-ch'uan-shou* treating of the course and prognosis of smallpox varying according to the place of outbreak and according to color and form. Ikeda Masanao, the medical adviser to the Prince Kikkwa, received instruction from Tai, and afterwards handed down his knowledge to his family from which was descended Ikeda Kinkyō, the famous specialist for smallpox treatment. Kinkyō was appointed medical adviser to the Shogun in 1796 and founded at Yedo (Tokyo) a special course in his science at the Medical Academy (Igaku kwan). He also published drawings of the lip and tongue of smallpox sufferers, and the minute details of his sketches give evidence of very careful study of the disease.

To check the virulence of smallpox the practice of inoculation was introduced into Japan in the second year of Enkyō (1744) by a Chinese from Hangchou called Li Jên-shan,⁷ but it was not followed to any great extent by the Japanese. It is only since the middle of the eighteenth century, when a Chinese book treating of inoculation was published in Japan under the title *Shutō shimpō* ("A Novel Method of Vaccination"), that this method was put more and more into practice. One physician who applied inoculation with good results is said to have been Ogata Shinsaku from the Province of Hizen in Kiushiu. This man also invented some instruments which proved very helpful in fighting an epidemic that raged in the clan of Akizuki⁸ in 1788. He also recorded the results of his investigations in a book, *Shutō Hitsujumben*, in 1795.

Vaccination became known in Japan not long after it was introduced into China by Dr. Pearson by means of the *Yin-tou-lüch*, a book written and published in 1817 by the Chinese physician Ch'iu Hao-chuan of Manhai who had applied Jenner's method with good results.⁹ The tract written by Dr. Pearson and the *Yin-tou-lüch* were translated into Japanese by the botanist Itō Keisuke in 1840.¹⁰

The Japanese obtained practical knowledge of Jenner's method from two different sources at about the same time. In the first case the knowledge was brought to them accidentally from Russia when a Japanese official named Nakagawa Gorōji, imprisoned in 1808 on the Kurile Island Iturup on suspicion of espionage, became acquainted with vaccination as conducted by the Russians. After his release he introduced it in his native town Matsumai of Hok-

⁷ *Vakzination*, p. 2.

⁸ In Chikuzen.

⁹ *Vakzination*, pp. 4, 5, where the name of the book is given as *Jin-tou-lüth*.

¹⁰ Shisei Oyama published the *Yin-tou-lüch* in 1847 in a revised and enlarged edition under the title: *Intoshimpō-zensho*.

kaidō, having obtained not only two books on the subject but some of the cow-lymph as well. Therefore Nakagawa was able to check the force of epidemics which raged in 1824, 1835 and 1842, but on account of the remoteness of his field of operation from the capital his successful work remained unknown there. However, this fact confirms the truth of a statement made by a Russian physician,¹¹ that in consequence of measures he had employed vaccination had been propagated from Jekutzh as far as Jakutsk and Ochotsk; but we suppose that the writer of this did not know that he had also been indirectly the teacher of Japan, which at that time was still closed to foreigners except a few Dutch merchants.

The other occasion was when the famous German physician and naturalist Philipp von Siebold, who was employed by the Dutch East India Company, introduced Jenner's discovery into Japan, importing cow-lymph from Java to Nagasaki in 1824. Originally the efforts made by him and some others did not meet with much recognition, but when Narabayashi Sōken,¹² medical adviser to Prince Nabeshima Kansō, Daimyō of Saga, having been ordered to provide cow-lymph, had obtained it from the Dutch physician Mohnike, and had vaccinated some children with good results in 1849, the new method gained a victory. Narabayashi also published a book *Gyūtō shōkō* describing the method of vaccination and reported a conversation he had had with Mohnike on the same subject.

Although the Bakupū, the government of the Shōgun, sympathized with the physicians of the old style and forbade the study of European medicine, the new method of vaccination made rapid progress in Japan. The most celebrated books of foreign medical authorities were translated into Japanese and published by Miyake Shinrai. Institutes for vaccination were established and pamphlets as well as colorprints distributed among the people. Specimens of these were to be seen at the exhibition held at Dresden which were very similar to the specimen described by Dr. Laufer. Finally in 1874 the new regime made vaccination compulsory after the Japanese institutes had been successful in preparing cow-lymph of good quality.

When the 100th anniversary of Jenner's discovery was celebrated in 1896, the united medical societies of Japan erected a monument in Ueno-Park at Tokyo in acknowledgment of the great genius of the discoverer.

¹¹ Cf. J. J. Dyer Ball, *Things Chinese*, 1903, p. 757.

¹² *Katalog, ibid.*, gives the name Narabayashi Wazan.

AN EASY WAY TO FIND EASTER IN THE TWENTIETH CENTURY.*

BY EBERHARD NESTLE.

THE newspapers report that the negotiations which recently went on between the states of Europe to put an end to the vaccillation of Easter, have been unsuccessful, at least for the time being. It is therefore desirable to know an easy way for the determination of Easter.

It is a well-known fact that in determining the date of Easter two traditions have been combined: the Jewish, which kept and keeps Passover on the day of the first full moon in the spring; and the Christian, which led to the observance of the following Sunday. Two questions are therefore united, when we ask on what day Easter will fall. We must know:

1. on what day of the month will be the first spring full moon, and
2. on what day of the week it will fall.

Following the good rule *divide et impera*, we can answer both these questions very easily.

1. Multiply the year (*annus*) a by 11, divide the product by 30, subtract the remainder from 45 and you have the day of the first full moon in the spring by counting from the first of March. The formula then will be $45 - (11a - 30m)$ in which m is the largest whole number of times 30 will be contained in $11a$, here ignoring the remainder.

Examples:

(19) $12 \times 11 = 132$; $132 : 30$ leaves 12; $45 - 12 = 33$. March 33 = April 2.

* Eberhard Nestle, D.D., Ph.D., a professor at the theological seminary at Maulbronn, famous for his Syriac and Hebrew works and also as a Semitic scholar in general, takes great interest in his leisure hours in mathematical studies, and we take pleasure in publishing one of his lucubrations in the line of his hobby. It may be of interest also to our readers that Dr. Nestle, having lived for two or three years in England, speaks and writes English with facility.

(19) $13 \times 11 = 143$; $143 : 30$ leaves 23; $45 - 23 = 22$. March 22.

(19) $14 \times 11 = 154$; $154 : 30$ leaves 4; $45 - 4 = 41$. March 41 = April 10.

Observation 1: If a (the year) be greater than 19, simplify the operation by subtracting 19 or multiples of 19.

Observation 2: If the result be smaller than 21, add 30.

Example for observations 1 and 2:

1943. $43 : 19$ leaves 5; $5 \times 11 = 55$; $55 - 30$ leaves 25; $45 - 25 = 20$;
 $20 + 30 = 50$. March 50 = April 19.

2. Now comes the second task: What day of the week is the day thus found? Denoting the desired day of the week by x , the day of the month by d , and the year by a we have the formulas

$$a) \text{ for April. } d + \left[a + \left(\frac{a}{4} - r \right) \right] : 7 \text{ leaves } x;$$

$$b) \text{ for March. } d + \left[a + \left(\frac{a}{4} - r \right) \right] + 4 : 7 \text{ leaves } x;$$

in which r equals the remainder of the previous operation being the division of the year by 4. In the resulting numerical values of x , 1 indicates Sunday, 2 Monday, etc.

To use the same examples as above:

1912, April 2. $2 + 12 + (3 - 0) = 17 : 7$ leaves 3 = Tuesday.

1913, March 22. $22 + 13 + (3\frac{1}{4} - \frac{1}{4}) + 4 = 42 : 7$ leaves 0 = Saturday.

1914, April 10. $10 + 14 + (3\frac{1}{2} - \frac{1}{2}) = 27 : 7$ leaves 6 = Friday.

1943, April 19. $19 + 43 + (10\frac{3}{4} - \frac{3}{4}) = 72 : 7$ leaves 2 = Monday.

Observation 3: It is clear that I can at once simplify every member by subtracting 7 or multiples of 7. Instead of saying March 22, April 10, April 19, I say 1, 3, 5; instead of years 12, 13, 14, 43, I say 5, 6, 0, 1.

Observation 4: That I must add to the year a its fourth part, comes from the leap years.

Easter then always comes on the Sunday following the day thus found; i. e., in 1912 it will be April 7, in 1913 March 23, in 1914 April 12, and in 1943 April 25, which is as late as Easter can fall, while in 1913 it will be almost as early as it can be.

3. There are two exceptions in the general rules for finding Easter; but as they are very rare, they may be neglected here. To explain how it is possible to bring the rules for Easter, which are regarded as very complicated, to such a simple form in the 20th century, will lead us too far here. Suffice it to say that the moon keeps a period of 19 years; therefore the 1900 years which have passed before the years for which we seek the full moon, may be neglected.

4. The above rules under 2 are only a special application of the general rules by which the day of the week of any date can be fixed.

d	m		c		a	1	2	3	4	5	6	7						
	II	III	J	G														
1	8	XI	13	20	7	12	18	29	35	40	46	57	63	68	74	85	91	96
2	9	—	12	19	16	20	24	28	—	—	—	—	—	—	—	—	—	—
3	10	—	11	18	15	19	23	27	31	36	42	53	59	64	70	81	87	92
4	11	VII	10	17	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5	12	X	9	16	18	22	26	30	37	43	48	54	65	71	76	82	93	99
6	13	V	8	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7	14	VIII	7	14	17	21	25	29	33	39	44	50	61	67	72	78	89	95
		(II)	0	7	14	17	21	25	29	34	45	51	56	62	73	79	84	90

They are based on the continued division of seven. Perhaps the most convenient form which can be given them will be found in the annexed calendar.

UNIVERSAL CALENDAR.

To find the day of the week of any date (for instance of the day of your birth) add the figures in either marginal column corresponding to the day (*d*), month (*m*), year (*a*) and century (*c*), and divide the sum by 7. The remainder will give the required day of the week, 1 meaning Sunday, 2 Monday, 3 Tuesday and so on. For the Julian calendar, which is still used in Russia and has been replaced elsewhere in Europe by the Gregorian since October 15, 1582, use for century (*c*) the figures under J, for the Gregorian under G. For leapyears, use for January and February the bracketed (I), (II).

By letting the letters *d*, *m*, *a*, *c*, stand for the marginal figures (1-7) which appear in our table in the same lines as the corresponding figures of the date, we have the formula,

$$d + m + a + c : 7.$$

To illustrate, let us determine upon what day of the week Washington's birthday fell this year. Then by consulting the table we find $d = 1$, $m = 7$, $a = 1$, $c = 3$. $1 + 7 + 1 + 3 : 7$ leaves 5. Hence the day of the week required is Thursday.