

offset a minor inaccuracy left in the reckoning by Gregory; but this is of interest only to astronomers since the change is not to take effect until the year 2000, and the error is so small that it will not amount to a full day until the year 4600.

The proposed new calendar is even more closely calculated than the latest Russian model. But one unescapable source of error still intrudes. It is known now that each year is shorter than the one preceding by a very small particle of time. The difference amounts to fifty-three one-hundredths of a second in a century. Prof. Marvin states that by the time this unavoidable error introduces a difference of one day in his method of reckoning, it will be the year 13,000 A.D.

#### MODERN SCIENCE BACKS ANCIENT HEBREW BELIEF

A sanitary regulation dating from the time of Moses has been shown to have a valid scientific foundation, by the investigations of Dr. David I. Macht and Dorothy S. Lubin, of the pharmacological laboratory of the Johns Hopkins University.

The ancient priestly laws of the Hebrew Pentateuch declare that women are "unclean" - "not kosher" - during the recurrent physiological crisis that comes once every lunar month. So stringent were the regulations, as given in Leviticus, chapter 14, verses 19 to 30, that any one who so much as touched them or any article of furniture used by them was declared unclean also.

Similar beliefs lie at the base of some of the "taboos" of present-day savages, and survivals of these primitive ideas still hold in rural parts of civilized nations. For instance, Dr. Macht points out that in the silkworm raising and perfume industries in France women are not permitted to work during the times of their malaise.

Such customs have come to be regarded as superstitions, but the work of the Johns Hopkins investigators shows that at such times women actually produce a powerfully poisonous substance in all parts of their bodies. They found that all the body fluids, saliva, blood, perspiration, even the tears and breath of menstruous women exert a toxic influence.

They made their tests by watering newly sprouted bean plants with very dilute solutions of these various fluids, and measuring their rates of growth as compared with check plants fed with ordinary culture solutions, and further checked their results by watering a third set of plants with fluids supplied by the same persons when they were in normal condition. It was found that the fluids supplied by their cooperators while they were "unclean" under the old Levitical law stunted the plants, in some cases slowing down the growth as much as forty per cent. Perspiration was especially strongly charged with the poison, for very small quantities washed from the skin into the culture solution had a marked effect. Perspiration of women in normal condition had little or no effect on the plants.

When women who were at their period held flowers in their hands for a few minutes they quickly wilted; but the flowers remained fresh when handled by normal women. The effect was notable on roses and carnations, and especially on sweet peas.

Another old belief is that at these times women should not make bread, for the dough will not rise. This was tested out by having women handle yeast, and

afterward testing its capacity to grow and produce carbon dioxide. It was found that the leavening power could be virtually destroyed by the toxic substance in the perspiration, though under normal conditions the yeast retained its full strength. Certain bacteria were also killed by the same treatment.

Under the microscope the effect of this unknown poison could be watched, as it paralyzed and partly broke down the living protoplasmic substance in plant cells. It was noted that the poisonous action on plant protoplasm was stronger than it was on animal.

Extracts made directly from the sexual organs of pigs showed similar toxic action. Body fluids of female animals taken under the same circumstances as those prevailing in the human experiments were also poisonous, though the intensity differed. Female monkeys produced much toxic substance, rats an intermediate amount, and dogs hardly any.

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#### RUBBER COATED FRUITS SHIPPED FROM TROPICS

Dipping in rubber latex, already a familiar process in tire manufacture, promises to become an important process in the fruit trade, according to a report to the Pan-Pacific Union by Dr. P. J. S. Cramer, a Dutch botanist of Buitenzorg, Java.

Dr. Cramer has shipped fresh strawberries with rubber coats without loss of flavor or texture, though the trip lasted fourteen days. He has shipped latex-dipped ripe mangos, and the mangosteen, which is considered the most delicate and hard to ship of all tropical fruits, from Buitenzorg to Paris, where they arrived in perfect condition.

The success of the process depends on the formation of a thin, airtight film over the surface of the fruit. The exclusion of oxygen stops the physiological processes, and no changes take place until the rubber film is stripped off again. During his experiments, Dr. Cramer dipped one end of a green banana in latex and left the other end as it was. The uncoated part went on and ripened, while the coated end remained exactly as green as it was at the start. Similarly, ripe fruits when dipped simply remain ripe and do not go on to over-ripeness and deterioration.

Dr. Cramer's process may become the basis of very important developments in the handling of tropical produce. Refrigeration in the tropics is expensive, and some of the choicest fruits, like the mangosteen, cannot be shipped even when refrigerated. Rubber latex, on the other hand, is inexpensive and abundant throughout all the hot countries, and its use is expected to have the advantage of economy both in cost and in the utilization as shipping space of parts of cars and vessels now occupied by ice chambers and refrigerating machinery.

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Certain tropical hardwoods are so dense that they will not float in water when they are to be transported rafts of bamboo or lighter woods have to be built to carry the logs.

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