The theory is advanced that all these customs are associated with a conception of life as a material and finite substance, a conception which leads logically to head hunting, cannibalism and human sacrifice as means of obtaining life-matter. It is well known that primitive languages are exceedingly poor in abstract terms; abstractions are therefore almost certainly foreign to primitive thought. It is suggested that the first conception of life is likely to have arisen from an attempt to comprehend death and the obvious but not easily explicable difference between a living man and a corpse. By a savage, unable to grasp any conceptions but those of concrete and finite matter, life would naturally be regarded as a finite material substance separable from the body and hence a wide field of speculation leading on the one hand to the practice of human sacrifice and other such means of obtaining life-matter, and on the other to the Vedantic philosophy which regards the body as a mere shell to house the soul, and only one of many such. It is suggested that this philosophy of life originates in the pre-Aryan civilisation of India, probably of Mediterranean or Syrian origin.

Letters to the Editor.

Hydro-Electric Schemes in India.

I WAS very much interested to read a letter by Dr. H. E. Watson on Hydro-Electric Schemes in India, in the August issue of the *Current Science*.

In general, the note appears to have been based on certain illusory defects. But, however, in the following brief note a few explanations have been given which will show that the adoption of 25 cycle frequency by the Mysore Government is not handicapping them as pointed out. In fact, it will be clear that it is no handicap at all.

The chief points raised in the note referred to are:—

(1) Defects regarding linking Mysore in future with the rest of India in case a grid system develops.
(2) The handicap which Mysore will be having in case railway electrification is taken up.
(3) Effect of 25 cycle lighting on the eyes of the villagers.

1. No doubt most parts of India are adopting in general 50 cycle system for the power generation and distribution system. The existing 25 cycle system in Mysore is due to the fact that the scheme was started long before any other scheme in India had been taken up. But this does not isolate us from the rest of India. There is machinery available to link the 25 cycle system with 50 cycle system if we want to do so and the object of such a linking in general is to utilise the spare power available during off peak-loads from one station to other stations where the load demand is more and the station by itself is incapable of meeting it. In the case of Mysore, such a spare power during off peak-load hours to the extent of about 25 per cent of its capacity can be made available for other systems when the grid system is adopted by such a machinery. The cost of such a machinery will be about one per cent of the cost now involved in changing the whole system to 50 cycles. In view of the above flexibility available it is but natural that it would be wasting money if an attempt is made to change the equipment so that the general supply becomes 50 cycles.

The next important point which prevents any such scheme being adopted is the point of view of the consumers who have purchased motors and other machinery suitable for 25 cycles whose equipments will have to be replaced at departmental cost if such a frequency change is adopted and the cost of such an arrangement obviously is prohibitive.

2. The difficulties, enumerated by the writer, that Mysore would be experiencing in case A. C. electrification of railways is adopted are not real. It is an established fact that the use of direct current for traction purposes has many distinct advantages and many of the electrifications in India have adopted D. C. system. From a perusal of the recent advancement made in the design and satisfactory operation of mercury arc rectifiers it will be seen that the recent experiment on A. C. electrification, which claims almost equal flexibility with the D.C. electrification, is further set back by the advantage gained in the natural characteristics of the rectifiers which, probably, will permanently claim superiority for D. C. electrification over A. C.

electrification of railways and thus the question of A. C. electrification may permanently be postponed.

From the above it can be seen that if Mysore intends electrifying its railways it will have to adopt D.C. system and when D.C. system is adopted no question of frequency arises and Mysore will not be handicapped in any way.

3. The question of the effect of low frequency illumination on the eyes is a point which I do not want to answer as it is beyond my sphere of activity. But the following short explanation will establish the fact that the rural areas have gained to a large extent at a small sacrifice if the 25 cycle lighting is considered harmful at all. The amenities of life resulting from the electrification of a town were only within the reach of the people living in Bangalore and Mysore. It was the desire of the present Dewan to see that these amenities were made available to the ryots in villages and the people in other head-quarters, as they form a larger portion of the population of the State. But there were two difficulties to be surmounted :—

(*a*) The ryots, as a rule, were poor and could not afford to pay for the amenities at the same rate as the people in Mysore and Bangalore could afford to do and the Municipalities were agreeable to get their town electrified provided it did not cost them very much more than what it would cost them at present to maintain kerosene lamps. This, of course, is due to their poor condition.

(*b*) On the other hand, Government could not undertake such works and invest large capital where the return was very low.

Thus, the department was called upon to find a solution for the two difficulties mentioned, and on careful planning it was found that if the same distribution mains are adopted to carry power load during day and lighting load during night the capital cost involved in the electrification of a town would be considerably reduced, and it was also found out that if the capital cost was reduced by this means the Municipalities were capable of giving a revenue which would be reasonable on the part of Government to invest the capital involved. Thus, it was adopted and 25 cycle lighting had to be resorted to. But this point in the design has been kept in view that when the lighting load improves in each of the sub-sections the department will have to install frequency changer sets converting the existing lighting system to 60 cycles and maintain the power supply at the 25 cycle system. This will not involve any additional expenditure on the part of consumers themselves and the increased revenue in lighting installations will justify the capital expenditure involved in changing the frequency from 25 to 60 cycles which is being done at present in Mysore and Bangalore.

It is hoped that the few points noted above will convince the people concerned that Mysore is not going to be an island as far as the electrification scheme is concerned as it may appear to be.

MOHAMED HAYATH.

Bangalore,
September 14, 1933.

A Triploid Plant in Rice (*Oryza sativa*).

IN the fourth generation of a cross between two varieties of rice, an abnormal plant was noticed characterised by marked sterility with only five seeds setting, out of nearly 800 spikelets. This plant on cytological examination proved to be a *triploid.* This is the second instance of the occurrence of triploidy in rice, the only other recorded case being in Japan where Nakamori (1932)[1] observed a triploid plant in the eighth generation of a cross between two varieties and determined its nature by noting 36 chromosomes in root tips.

Aceto-carmine smears were employed to study the meiosis of this plant. At Diakinesis, 12 trivalents are usually observed, though occasionally cells are met with, where the third member of one or more groups appear unassociated with its homologues (Fig. 1). At metaphase (Fig. 2) normally the 12 groups arrange themselves on the equator and very early in the anaphase the members of the trivalent groups disjoin into distinct units and assort apparently at random to the poles. In the material so far examined the distribution of the chromosomes to the poles was found to be either 18 and 18 or 17 and 19. Frequently univalents are seen to split (Figs. 3 and 4) and the split halves either move to the opposite poles or to the same pole. The second division is

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[1] Nakamori, E., *Plant Breeding Abstracts*, **3**, No. 3, 1932, *Imp. Bur. Plant Genetics.*