Physiological Experiments on Germination of Coffee Seed.

Dr. J. SCHWEIZER.

(Summary.)

I. Experiments Concerning Phyletical Potencies of Coffee Seed.

ACCORDING to Sperlich's theory (phyletical potency) every individual has a fixed quantitative factor, that determines the future existence of offspring of this individual. It follows from this theory, that the offspring of a plant which has few seeds, has this factor in a greater degree, than offspring of the same plant when it produces a large number of seed. The duration of time of fertilisation of the seed, decides the vitality; thus the seed first plucked, would have the said factor in a greater degree than that plucked later.

According to the same theory, abnormalities also appear in a plant, in the growth of the blossom, when the phyletical potency is sufficient.

Germinating experiments with coffee seed have given the following results :—

1. Seeds from a single tree can show distinct differences in germinating energy and strength; generally speaking the germinating energy of later plucked seed was stronger.

2. Seeds from trees having abnormal formations, ("Candle blossom" berries with three seeds) showed a more apparent decrease of germinating strength and energy.

3. Seed from a garden that was sorted into normal and round berries, showed in practice, no difference in germinating strength and energy.

4. Seed from a garden sorted into light and heavy berries, showed, in practice no differences in germinating strength and energy.

5. Seed from a garden sorted into very large and very small berries, showed, for the small seed, a higher degree of germinating energy and strength. These produce, however, much weaker plants of which about half die.

6. The plants obtained from seed of the above-named experiments were, after 1½ years, all similar as regards development. The previous differences thus disappeared.

II. Experiments on Preserving Coffee Seed.

Coffee seed kept in a dry atmosphere very quickly looses its germinating strength; very probably this is due to the evaporation of water. When we try to prevent this evaporation, by keeping the seed in paraffin oil, then the

germinating strength is very soon weakened; there is in 2½ months' time a distinct bubble formation, and the air in the preserving jars smells of alcohol. After three months' preservation in paraffin oil, the seed was as good as dead; only 4% germinated.

III. Experiments on the Stimulation of Coffee Seed.

Peeling and softening of fresh seed is an already long known and used method of stimulation.

Softening in different mixtures, according to the Popoff method caused more harm than good. An increase of germinating energy and strength was never obtained. The 8 months old plants produced from stimulated seed, showed absolutely no difference in development. Under certain conditions (with coffee preserved for a greater length of time) a higher degree of germinating strength and energy could be obtained with formaline. Further experiments of this sort are therefore needful.

IV. Conclusions.

There is a danger in the generalisation of results of germinating experiments; climate, in which the experiments are carried out, origin of the seed, time of plucking, condition of the seed at the time of the experiment; all these factors are dependent on each other, influence each other mutually, and together influence the internal germinating conditions of the seed.

It can only be found by experiment, whether for certain seeds under determined conditions, there is a safe and beneficial treatment.—*Archief Voor de Koffiecultuur,* Vol. L., No. 6.