OUR POST BAG

LIGHTNING STRIKE

The Editor,

Ceylon Coconut Quarterly.

Dear Sir,

The following is the text of a letter received from the proprietor of an estate within the membership of this Association.

"I shall be glad if you will inform me about any practical device to prevent coconut trees from being struck by lightning.

"Several trees on my estates are destroyed by lightning every year and a convenient method of protection would be very helpful indeed."

I shall be obliged if you will let me have your comments.

Yours faithfully,
N. B. W. DULLING,
Secretary,
The Planters' Association of Ceylon.

REPLY

Dear Sir,

The "Lightning Conductor" is the only apparatus designed so far, for protection from the destructive effects of lightning. The object of erecting a number of pointed rods to form a lightning conductor is to produce a glow or brush discharge and thus neutralize or relieve the tension of the thunder cloud.

Lightning discharges are distinguished into two distinct types, *viz.*, "A" and "B" flashes. The former is of the simple type which arises when an electrically charged cloud approaches the earth without an intermediate cloud intervening. In the second type (B), where another cloud intervenes between the cloud carrying the primary charge and the earth, the two clouds practically form a condenser and when a discharge from the first takes place into the second the free charge on the earth side of the lower cloud is suddenly relieved, and the disruptive discharge from the latter to earth takes such an erratic course that according to the Lightning Research Committee "no series of lightning conductors of the hitherto recognized types suffice for protection."

For a coconut estate, a single air terminal would be insufficient. Besides multiplying the number of points, numerous paths, as well as interconnections between the conductors, may have to be arranged to lead the discharge to the earth.

A " B " Type flash may ignore the points of lightning conductors, however great the number present, there being such a store of energy in the cloud that they are unable to ward off the shock of a sudden flash.

A GROUP OF TREES STRUCK BY LIGHTNING

According to Dwyer (1937), certain plantations are susceptible to lightning strike if there is a high percentage of magnetite or magnetic iron ore in the soil. The proximity or a high mountain peak, causing high electrical potential in that region, can also be adduced as a second cause, if " lightning strikes " are frequent.

Your enquirer, could consult a firm of electrical engineers, who should as an experiment be able to design " Lightning Rods " suitable for coconut estates.

Yours faithfully,

W. R. N. NATHANAEL,

Chemist,

Coconut Research Scheme.

Following this, inquiries were sent to the three principal wireless stations in Ceylon and the following were the replies :—

STATION "A"

Dear Sir,

In my opinion steel radio masts would definitely tend to attract any lightning discharges in the vicinity provided they were higher than other surrounding objects. The masts would act as a conductor to ground, but such conduction cannot be regarded as a guarantee that other adjacent objects would not be affected.

Similar conditions would apply to wooden masts fitted with lightning conductors but it will be appreciated that a lengthy aerial whether suspended from wooden or steel towers also has a direct bearing on the problem and would present an additional area for the collection of any lightning in the vicinity of the aerials.

It is the practice to fit such aerials with lightning arresters, or earthing switches, but experience in Ceylon has shown that the former are not a 100 per cent. guarantee against damage to radio equipment nor are they connected to the masts from which the aerials are suspended.

In regard to the use of earthing switches it is quite probable that lightning would strike an aerial before the switch could be operated and here again the switch is connected to the aerial system and would not prevent the collection of a lightning discharge by the masts themselves.

STATION "B"

Dear Sir,

I have no knowledge of any coconut tree having been struck by lightning within the 73-acre camp of Radio Ceylon Transmitters, where the highest steel masts in Ceylon are located. Silent discharges certainly take place, and storms frequently dissipate as they pass over. If the lightning strikes, the taller masts invariably get hit. Our masts are 325 feet (two) 260 feet (three) 155 feet (one) and 105 feet (two).

STATION "C"

Dear Sir,

A well-earthed metal radio mast will act as a lightning conductor, and I should consider that palms in the immediate vicinity of the mast would be well protected from lightning strikes.

The following extract from the Handbook of the Bureau of Standards, No. 17, as quoted in the Engineer's Year Book may be of some assistance :—

" Code for Protection Against Lightning

" .....Theory and experiment show that a vertical conductor will generally divert to itself all direct hits within a cone-shaped space, of which the apex is the top of the conductor and the base a circle of radius two to four times the height of the conductor."

[It may be calculated from the above that a lightning conductor, 100 feet high, attached to a coconut palm, would protect an area of about six to eight acres, and that a 100-acre estate would require 12 lightning conductors to provide complete protection.

The subject has been investigated by the late Mr. A. Sharples, formerly Director, Rubber Research Institute of Malaya and one-time Mycologist, Department of Agriculture, F.M.S. and S.S. His principal conclusion was that " lightning is of primary importance in the causation of disease on coconut plantations in Malaya." *Malayan Agricultural Journal*, Vol. XXI, 1933, p. 316, which is available in our Library.—*Ed.*]

WATER CONSERVATION

The Editor,

Coconut Quarterly.

Sir,

The various articles dealing with both the necessity for conserving water in our soils and the measures to be adopted, appearing in the last issue of the *Quarterly*, are both interesting and instructive. There is, however, one point that has struck me. All the measures recommended are artificial and purely mechanical. It seems to me that an examination of Nature's method may also be instructive and interesting. After all, the conservation of water in the soil is something with which the old Mother has had an infinity of experience.

In a state of nature, mountains are usually forest clad up to the snow line. The subsoil, which is impermeable when exposed, is covered with a blanket of humus-laden soil over which lies a mulch of fallen leaves. The mulch protects the soil from the battering effect of rain, the blanket absorbs the rainfall, greatly slowing down, if not altogether preventing, " run-off," and compels percolation through the subsoil into the subterranean reservoirs. Thus are the springs fed, that in turn feed the streams and rivers, and thus are floods prevented.

When " Nature's Insurgent Son," Man, has set to work to clear the land, the soil usually has no protective mulch, and his cultural operations tend to deplete the soil of humus. Gradually the soil is lost, leaving the subsoil exposed and impermeable. The rainfall runs off the surface and does not sink in to replenish the subterranean reservoirs. Thus do the springs dry up, resulting in drought conditions, and thus are floods encouraged.

Curing this state of affairs by artificial contrivances has its disadvantages, because they are seldom fool-proof. Any weak spots in a series of contour terraces or trenches are liable to break down in a tropical downpour, and may result in enormous damage. It will require men with some degree of expert knowledge and skill to construct contour terraces and trenches, and it is not to be expected that either the small holder or the type of " watcher " usually left in charge of a coconut estate will have the required ability.

It seems to me better to adopt Nature's method, of making soil rich in humus and protecting it with a thick mulch, rather than to construct any mechanical contrivance as a substitute. Perhaps the old farm hand spoke no more and no less than the truth when he said to Henry Warren (in " England and the Farmer ") " If you go along o' Nature, Nature'll go along o' you ; but if you try to go against her, she'll end up by landing you in a devil of a mess."

Yours faithfully,

R. H. SPENCER SCHRADER.

Wester Seaton Farm,

Negombo, 16th March, 1951.

[There is a definite relationship between water conservation and the reduction of nut fall. —*Ed.*]

The Editor,

Ceylon Coconut Quarterly.

ORGANIC AND INORGANIC FERTILISERS

Dear Sir,

Please let me know whether a mixture of organic and inorganic manures is preferable for coconuts to manuring with organic or inorganic manures only.

Of organic and inorganic manures what is preferable?

Yours faithfully,

E. L. P. MENDIS.

REPLY

Dear Sir,

With reference to your letter of 1st September, 1950.

It is preferable to manure coconuts with a mixture of organic and inorganic manures rather than manure with either alone.

In practice this amounts to biennial treatments with an N.P.K. mixture, plus ring manuring with cattle, the systematic burying of husks and biennial ploughing in of weeds and cover crops just before the rains.

Yours faithfully,

F. C. COOKE,

Director,

Coconut Research Scheme.

11th September, 1950.

[This is a highly controversial issue. Correspondence or original articles on this subject are invited.—*Ed.*]