

# SOIL AND HEALTH

## Plant Biologist's Opinions

THE following comment on the paper presented to the recent Science Congress in Wellington by Sir Stanton Hicks was written for "The Listener" by DR. I. D. BLAIR, of Canterbury Agricultural College, but was not available in time for inclusion with the text of Sir Stanton's address in our last issue.

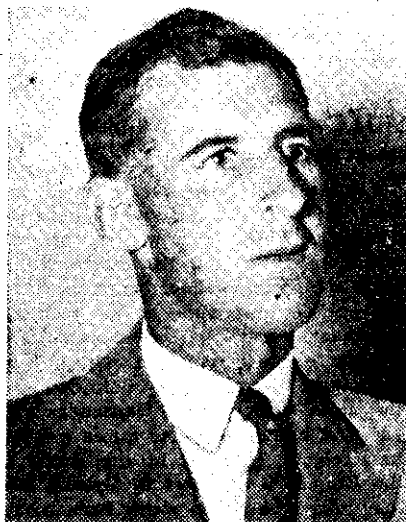
SIR STANTON HICKS is a scientist and develops his argument concerning soil, food, and health from his own experimental data and critical observations within his own experience. His philosophy therefore is more

in some orthodox circles but the question which I think he raises remains: Is the productive capacity of New Zealand soil, as measured in terms of exported meat carcasses and by-products, of the same order in terms of health in our people, who at least hope to live longer than fat lambs and porkers and whose vigour is not a matter of body weight, proportion, of lean or fat or hair production?

### Observations in Canterbury

I am interested in certain features of Sir Stanton's remarks concerning organic matter in the soil for the reason that in some of our plant disease studies there appear to be allied tendencies. Thus some diseases in Canterbury wheat have under experimental conditions been notably checked by incorporating in soil before wheat sowing, heavy quantities of undecomposed straw—not merely ploughed in stubble. Likewise in Canterbury, potato blight causes much less tuber decay where the crop is grown after ploughing in heavy preceding crops of lupins as green manure. When in Texas, I was impressed by the evidence of prevention of devastating cotton root rot through ploughing in undecomposed organic matter before cotton planting.

The point is that in plant health also, we have the evidence that organic supplements (not compost in my examples) enhance disease avoidance. It must be said though that the effect is not directly one of soil nutrition in relation to disease. For those who are interested, the technical explanation in these instances, of the manner in which some forms of organic matter may limit plant disease activity is as follows: Straw, lupins, etc. are cellulose-rich materials and as such when added to soil they stimulate a tremendous microbe increase. This micro-population is effective then in decomposing added supplements. In this process the normal soil inhabitants by chemical and physical effects limit or suppress development of some plant disease organisms which through their parasitic habit are less well adapted to take part in the obligatory decomposition activities. They are suppressed and die out at least temporarily; for a sufficient interval to permit healthy growth in the subsequent disease-susceptible crop. If these latter observations appear pointless apropos to the direct subject, may I try and wriggle out of the situation by emphasising that studies on organic matter in animal health have been preceded by several years of like investigations concerned with problems in man's food crops.



DR. I. D. BLAIR

arresting than the usual vociferations and dogma of certain elements in compost circles. I think he is performing a service, if he makes people think, and investigators work, towards a clarification of our health balance-sheet, as shown between what a primary produce exporting country like ours takes from the soil, in relation to what is added or returned thereto.

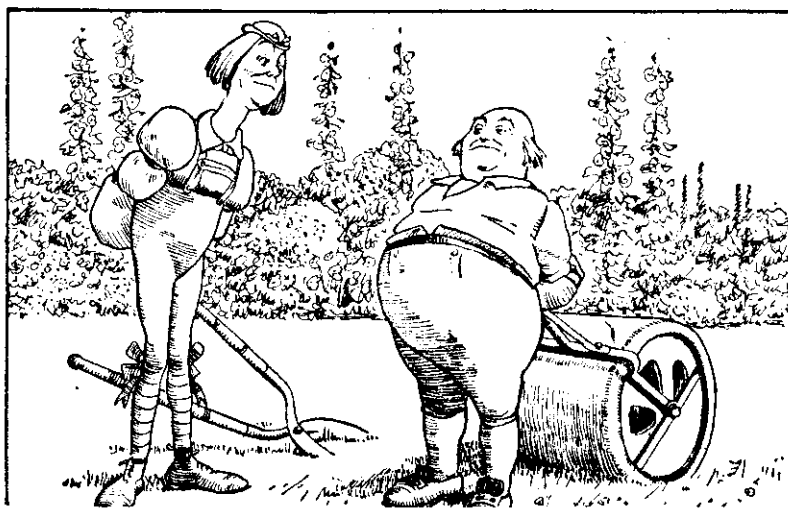
It seems definite that although our control and prevention of microbial diseases has advanced, functional disorders and nutritional complaints in humans (and in plants) are claiming increasing toll and in fact are the reigning primary causes of death. It has at least to be proved that nutritively depleted soil is not the root cause of predisposing factor of this state. No doubt Sir Stanton's viewpoint will be scorned

(continued from previous page)

the voyaging range of a Polynesian ship was 2,500 miles, but that estimate was based on the voyages accomplished within Polynesia itself.

In the meantime, Heyerdahl and his party drift not unpleasantly onwards on the broad bosom of the Humboldt current. Their raft, according to overseas reports, is built in traditional Peruvian fashion of balsa-wood. No nails have been used in its construction, all joints being lashed with rope. It is 40 feet

long and 18 feet wide, has a bamboo deck, a small bamboo cabin, and two masts which support a primitive sail. But though the craft is primitive enough, the crew have certain modern amenities. They have a radio, with which they have been sending daily reports to the U.S. Weather Bureau, and they are also well supplied with iron rations, anti-exposure suits, and U.S. army sunburn cream. For entertainment during the trip they have taken along a guitar, but whether it is a Hawaiian guitar, the reports do not say.



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