established in Russell Square in 1905. Here laboratories were constructed for chemical, bacteriological and other research work. The courses of instruction given in these laboratories are recognized as qualifying medical practitioners for admission to the examinations for degrees and diplomas in public health of all the universities and medical corporations in the kingdom.

INDICATIONS of extensive commercial research in Soviet Russia are shown, as reported in the *U. S. Daily*, in large exports from the United States of various types of scientific, laboratory and professional instruments and apparatus in 1929. Soviet Russia became the second most important market for this class of materials last year, being exceeded only by Canada, which is the leading purchaser of American scientific appliances. The shipments to Russia amounted to $400,816, and accounted for a large part of the 23 per cent. gain in the year's exports of these commodities. The total shipments in this group, which is classified as "other scientific, laboratory and professional instruments and apparatus," aggregated $4,344,640 during the year. The materials include scientific instruments for testing physical strength, materials and forces; chemical and physical apparatus, aeronautical, astronomical and bacteriological instruments; graphic recording, military and naval, meteorological appliances; microscopes, laboratory scales, thermometers, barometers, hygrometers, magnets, etc. The exports of these materials showed a gain also during the month of January, when shipments amounted to $344,763, an increase of 13 per cent. over the corresponding month of 1929.

DISCUSSION

A SACRIFICE TO PELE

DOWN along the thinner borders of the lava overflows from Kilauea, which four years ago surged out into the fern forests and cut off some acres of them, where Pele's glowing strands had floated round, I noted last October that many of the tree fern stumps, somewhat pocketed in the light and fluffy lavas from one to three feet thick, seemed again to come to life. Could that be? I asked, and was told it was apparently so.

Then I looked over about an acre of the former fern forest, noting many of the stumps which seemed to send up the gnarled, irregular shoots, rather large for the time in which they had appeared, if grown from spores and prothalli. No soil seemed to have gathered over these shoots; their roots were imbedded deeply in the chaffy tops and remnants of the old stumps. No other plants or ferns of any kind whatever were to be noted round about, although the rough, deeply furrowed lavas should have favored soil forming and the growth of prothalli. Without previous and continued observation of the stumps from the time of the flows and without the digging up of the stumps from beneath the lavas, it seemed necessary to consider the amazing explanation of survival. Not knowing the forms of the fern forest very well, I can't say which of the several species was concerned, or how.

Could a surging, fiery spray of thinning waves of basaltic lava of extreme liquidity, flowing rapidly about the fern trunks with their heavy mat of wet, insulating chaff, perhaps with accompanying torrential rain, cool quickly enough to leave strands of the fern stumps still alive? And then, with initial rootlet cell growth, could a stalk cell form, and life begin anew? This much is certain: the liquid lava temperatures, usually recorded as from 800° to 1,200°, would be nowhere near so high about the fern stumps while the free tops of the forest were cut down. There would also form about the chaffy outer mass a jacket of steam which would hold the lava away from the stems as water from below made its escape. The trunks themselves and the fern forest floor would be further protected by a dust and ash coating precedent to the flow. The lava is very vesicular.

Recently the subject of reforestation following devastating eruptions, especially at Krakatau and at Katmai, has claimed some further attention. It has been found that the destruction of the original flora is not so extreme as earlier supposed. Certainly, ferns do come up from beneath the ash when it is washed away by the rains.

G. R. WIELAND
YALE UNIVERSITY

BRANCHING HABITS OF THE HEVEA RUBBER TREE

MANY tropical trees have specialized habits of branching, which may be viewed as adaptations to forest conditions. Darwin and many other writers have recognized that forest vegetation in the tropics must meet an intensive competition for space and light. Chances of survival are greater for seedlings or saplings that can outgrow the surrounding vegetation and reach the sunshine. The seedlings of Hevea are specially adapted to undergrowth conditions in tropical forests.

Instead of beginning to branch near the ground, as do the more spreading trees of temperate climates, the specialized tropical species send up at first a tall, slender stalk, with branches only at the top. The