

"incalculable value" involves the education on similar lines of 9999 who will not be of any special value.  
13 Vicarage Drive, Eastbourne. G. W. BULMAN.

YOUR correspondent, like many other people, regards the struggle for existence, not only as a fact, but as an ideal; not only as a necessary mode of effecting improvements in low-grade organisms, but as a method which should indefinitely continue in unchecked and unaided action, in spite of the arrival on the scene of a comprehending and guiding intelligence, such as may be competent to replace it by methods more direct and rapid; for instance, the methods of artificial selection and protection of the weak, which we have learnt how to begin to practice.

He also presses his admiration for the struggle-and-survival method so far as to suppose that no properties and powers can be useful which are not fostered by it.

To me it seems that struggle and competition are more akin to those forces of nature which the human race does wisely to train and hold in check, as a maritime country might protect its coasts from the ravages of the sea, instead of sitting idle and assuming that nature alone, without the guiding hand of man, is perfect and unimprovable. Surely it is a mistake to suppose that the fostering care which after long effort has been now manifestly introduced into the scheme is useless and inoperative and subordinate to the forces which preceded it.

OLIVER LODGE.

#### A Pot of Basil.

MR. A. E. SHIPLEY'S interesting article (p. 205) on *Ocimum viride* and its influence on mosquitoes recalled some observations that I made upon the papaw tree (*Carica papaya*) in China. My house, on the bank of the liver at Whampoa, near Canton, was singularly free from mosquitoes, though the other houses on the same island were more or less infested with them. A line of papaw-trees stretched between my house and the river. I frequently watched these trees, yet I never saw a single insect alight on them, though flies and other insects settled in numbers upon the bamboos and banana-plants not far away. In fact, the papaw-trees seemed to keep insects at a distance and to act as a rampart guarding the house from mosquitoes. The probability of this suggestion was considerably strengthened by the increase in the number of mosquitoes entering the house after a typhoon had blown down two papaw-trees and thus made a gap in the row, and by the still further increase when a second typhoon felled another of the trees. I have questioned a number of persons living in the tropics, and one of them stated that he was familiar with the fact that papaw-trees repelled mosquitoes.

That the papaw-tree possesses some curious property—in addition to the notorious proteolytic action of its juice—is suggested by the widespread practice of hanging meat in its shade to render the meat tender. The custom is frequently regarded as a senseless one, but its wide distribution causes one to ask, Is it not possible that the papaw-tree should exhale a gaseous product which either repels meat-destroying insects or exerts an antiseptic action on putrefactive bacteria, or, finally, is a volatile ferment? The peculiar relation in regard to temperature displayed by the proteolytic ferment of the papaw juice renders the last possibility less improbable than at first impression.

PERCY GROOM.

#### The Mismanagement of London University Library.

Is it impossible for the powers that be at London University to abolish the scandalous regulations concerning the library, and to render this library a means of culture instead of an almost unusable and unused collection of books? A university library ought to be so managed that anyone wishing to bequeath books could put them to no better use than by leaving them to the university; but, as things are, it would scarcely be possible to more effectually waste books than by giving them to London University. In the first place—contrary to the practice of the learned societies and the subscription-libraries—no graduate is allowed to have books sent to him by post, which regulation at once renders the library utterly useless to the great majority of graduates. Secondly, an absolutely insane rule requires the return of all books by December 31 of each year, even though they may have been borrowed at Christmas and are required for study during the vacation! and although I interpret this

rule as applying only to non-members of Convocation, a contrary interpretation has prevented me from obtaining books a fortnight ago. Thirdly, although the University has now been located in its new home for two years, a personal demand for books is met by the reply that, as "the books of the library have not yet been arranged, and the whole library is in a very disorganised state," the books either cannot be found at all or only after several days' delay! The history of a recent attempt to obtain books from this library would move the careless to laughter and the studious to anger; but I dare not trespass further on your space.

F. H. PERRY-COSTE.  
Polperro, R.S.O., Cornwall, January 8.

#### Recent Earthquakes in Guatemala.

A FEW weeks ago, I returned from a journey of several months' duration through the western part of the republic of Guatemala, where I investigated, at the request of the Government, the causes and effects of the recent earthquakes. The principal results are the following:—

The first severe earthquake was reported to have occurred on January 16, 1902, at the south-west of Mexico, destroying Chimalzingo, the capital of the State of Guerrero.

On January 18, 5.20 p.m., a strong shock occurred on the Pacific side of Mexico and Guatemala, shaking down in the latter country the village of San Francisco Zapotitlan (near Mazatenango), and destroying buildings and masonry work in several large plantations near this village and farther west in a district south-east of the town of San Marcos. The shock came from the S.S.W., and was reported from the whole Pacific coast of Guatemala and Soconusco, but I could not get information how far inland it was perceived.

From that time on, a great many local shocks were noted in the western part of Guatemala, especially in a district called Costa Cuca.

At 8.25 p.m., April 18, the most severe earthquake occurred, being felt from Nicaragua to the city of Mexico, over all Chiapas, the whole republic of Guatemala, British Honduras and a great part of Spanish Honduras.

In my sketch (NATURE, June 12, 1902), the region in which most destructive effects occurred must be extended more to the west, taking in north-eastern Soconusco.

In Guatemala, the towns that suffered most were Quezaltenango, San Juan Ostuncalco, San Pedro Sacatepequez, San Marcos and the Port of Ocós. Great was also the damage done in the numerous coffee plantations. Enormous landslips dammed up rivers (Rio Naranjo and Rio Ixtacapa) and destroyed hundreds of thousands of coffee-trees. The total loss of human life numbered 330 to 335, of which 129 were killed in Quezaltenango and forty-nine in San Pedro Sacatepequez.

The earthquake lasted more than fifty seconds and also came from the S.S.W. This was clearly shown by the effects of the shock in the coast towns and in the coffee region; in Quezaltenango and San Marcos, there have been movements in many directions, but the initial one was also from S.S.W.

After April 18, a great number of smaller shocks of short duration and generally very restricted extension were observed, most of them again in the Costa Cuca and neighbouring districts, and on September 23 another larger earthquake shook the whole country again, but did little damage (in Quezaltenango a child was killed by a falling wall). I was then in Guatemala City, where the shock lasted sixty-five seconds. The movement was again from S.S.W. Reports about it came from the Peten, Belize, Salvador and Chiapas.

The epicentrum of the great earthquakes of January 18, April 18 and September 23 must be situated out in the Pacific Ocean; the cable which connects San José de Guatemala with the Mexican port Salina Cruz was broken during October.

The local shocks (of which I noted a great many) between the large ones came from different directions. Underground noises were frequent.

There had been wild reports about threatening eruptions of the Fajumulco Volcano (4210 m.), the highest in Central America. I ascended it in June and went around it at its base, but the volcano was quiet. Great land and rock slides had altered its slopes a little, especially to the south and around the crater. The hot springs at the town of Fajumulco were nearly in the same condition as when I had seen them in 1885.

The people of the district were also much afraid of the volcano of Santa Maria. This volcano, 3768 m. high, is in its upper

part a nearly perfect truncated cone. All sign of a crater has disappeared, the top being flat. There is no notice, not even tradition, about any eruption of the Santa Maria in pre-Columbian or historic time.

Between this volcano and the town of Quezaltenango, to the north-east, rises the volcano Cerro Quemada (burned mountain) to 3179 m., indicating a secondary fissure nearly at a right-angle to the primary volcanic fissure of Guatemala. The Cerro Quemada has a very large crater, difficult to go over on account of the big lava-boulders filling its bottom. No channel connecting with the interior of the earth is visible, but many solfataras and fumaroles exist there; they did not show any sign of renewed activity. The Cerro Quemada had its last eruption at the beginning of last century.

The deep-cut and narrow valley of the River Samalá separates these two volcanoes, Cerro Quemada and Santa Maria, eastward from the old volcano Zuñil. In the bottom of this valley, there are, near the Indian town of Almolonga, hot springs (their water had been reduced in quantity after April 18), and farther down, below the town of Zuñil, a great many fumaroles send up hot steam, and some of them show sometimes geyser-like phenomena, throwing out at intervals plenty of hot water to a height of a few feet. During the rainy season (May to October), these fumaroles produce more steam, and there is also a marked increase of their activity from the forenoon maximum of barometric pressure to the afternoon minimum.

To the north-west of the volcano Santa Maria rises the much more voluminous mountain mass of Siete Orejas (seven ears), 3361 m. high. It is a very old volcano; the upper part has disappeared and the disintegrating influences of water and air have carved out on its top a number of rounded eminences; deep barrancos cut its sides. On its southern slope, towards the Costa Cuca, exists a pretty large parasitic crater with a lake of about  $\frac{1}{2}$  km. diameter in it, called Chicabal. It has not yet been mentioned anywhere before.

The southern slopes of Siete Orejas and Santa Maria are separated by the barranco of the River Ocosito, which also separates the coffee districts of "Costa Cuca" and "Xoluitz." To the east of Xoluitz follows the district of "El Palmar." The highest coffee plantations here were Helvetia, San Antonio and La Sabina (1150 m.), the last one also a very popular bathing resort, with strong springs of mineral water (carbonic acid).

The region from the Costa Cuca to El Palmar was the most famous coffee district of Guatemala. Its annual production was from 250,000 to 300,000 quintals, and its plantations were provided with the best machinery and gave employment to about 40,000 labourers.

A great part of this prosperous region has been nearly annihilated by a volcanic outburst at the south-west side of the volcano Santa Maria.

Soon after midnight of October 24-25, terrific detonations announced the beginning of the volcanic activity (N.N.W. of El Palmar and at about 1800 m. elevation above sea-level). These explosions were heard so far as the capital of El Salvador, over a great part of Chiapas and in the western part of Spanish Honduras. Here, near Gualan, I am about 150 km. in a straight line from the Santa Maria, but was awakened at 1 a.m. by the noise of explosions like cannon shooting at short distance. Towards morning, the louder detonations were repeated at longer intervals, but between them a nearly constant low roar could be heard. All noise ceased at about 1.30 p.m., but began again at 6 p.m. and lasted until 11.30 p.m. During the following three days, I heard detonations at different intervals.

The new volcanic vent began pouring out an immense quantity of ashes, sand and pumice-stone. The prevailing north and north-easterly winds spread the lighter material in a dense veil to the west and south-west, producing so far as Tapachula in Soconusco darkness for more than forty-eight hours. Ashes, sand and small stones fell in quantity over a large area, crushing houses, burying the vegetation, and a great many people perished. In the town of Quezaltenango (24,000 inhabitants), although the quantity of ash falling was not very dangerous, people got nervous about the terrific roar and afraid about the strong sulphurous smell, and thousands left the place. A great exodus began from the whole affected district, although heavy rains which accompanied the eruptions had swollen the rivers and destroyed every bridge. All the labourers, mostly Indians from the highland towns, ran away, but many perished under the falling ashes or were drowned in the rivers. The plantations nearest to the new crater are covered by a layer of stones

and ashes 5 m. to 10 m. deep. Farther away, of course, less material fell, but still the damage done is very great. This year's coffee harvest there is completely lost (more than 200,000 quintals), and it will be very difficult to get the labourers back again to begin work to save what can be saved still.

Until a few days ago, it has been very difficult for me to get any exact information about this eruption. Dr. Carl Sapper, who arrived in Guatemala City on October 24, went afterwards to Quezaltenango. He writes me that he tried to get near the focus of eruptions, but the ashes and the sulphuretted hydrogen impregnating the air obliged him to turn back, and he could not get even a look at the new crater. In the Indian town of San Martin Chilerverde, fifty-six persons killed had been buried, but as many huts are still under the ashes, more corpses will be found later. From some other places, he reports forty-eight lives lost, but the list is very incomplete.

Dr. H. Prowe writes me under date November 15 from Chocóla:—"The eruption is going on with frequent strong earthquakes, but the quantity of ejected material is diminishing greatly. The number of people who perished cannot be estimated yet, but more were killed now than by the earthquake on April 18. The new volcanic cone can be seen from San Felipe. It has an elliptic crater three miles by one mile (?) diameter."

For several years, the volcano Izalco, in El Salvador, the most active in Central America, had been very quiet. After April 18, it began its eruptions again, sending also forth a lava stream towards south-east, which nearly filled up a barranco between the volcano and the town of Izalco.

During last May, the volcano Momotombo, in Nicaragua, had a short eruption; now comes from the same country a report about the volcano Masaya being active. Dr. Sapper, who will leave San José de Guatemala on December 11 for Panamá and the West Indian Islands, intends stopping at Nicaragua to investigate these eruptions.

EDWIN ROCKSTROH.

Gualan, Guatemala, C.A., November 30, 1902.

#### PROF. LORENZ'S TREATMENT OF CONGENITAL DISLOCATION OF THE HIPS.

ON Wednesday, January 14, at the City Orthopædic Hospital, Prof. A. Lorenz, of Vienna, demonstrated his "bloodless" method of reduction of congenital dislocation of the hips. Before giving details of the demonstration, it may be desirable to describe plainly the nature of the affection.

Children are sometimes born with one or both hip-joints dislocated, the head of the thigh-bone being displaced either above and behind or above and in front of its socket, and sometimes in other directions. The parts of the bones forming the joint may be perfectly, or almost perfectly, formed, but are more often defective in shape; the head of the thigh-bone, instead of being a rounded projection, may be in the form of an irregular cone, and the neck of the bone, which should unite it to the shaft, may be shortened or absent. The socket in which this head should work—it is a ball and socket joint—is generally more shallow than is natural, and is very frequently deficient at its margins, especially posteriorly and above. Consequently, should it be possible to get the head back to its place, there is a great tendency to redisplacement.

It has always been the aim of those surgeons who especially study such cases (orthopædic surgeons) to retard, or arrest, or correct the deformity. It is impossible here to give the history of the surgery of this affection. It dates from the time of Hippocrates, but it was in the early part of the last century that surgeons, such as Dupuytren, Guérin and Pravez, described the affection scientifically and explained practical methods for treating it. Pravez, jun., seems to have carried out treatment upon much the same lines as those now adopted by Lorenz, and several orthopædic surgeons in this country have, since then, followed the same plan