

existing, or healing deficiency. Over 80% showed both old and existing or new signs of deficiency.

Blood plasma studies of 276 individuals, also in Maine, showed plasma ascorbic acid values below 0.4 milligrams per cent in 38% of those examined. Such low values are usually found with vitamin C under-nutrition which, when fully developed, is scurvy.

Decayed teeth were found in 65% of white persons and 73% of colored. It is defective teeth that accounts for the largest percentage of draft rejections this year.

These poor farm people never seem to have teeth filled. Their teeth get holes in them, remain untreated, and finally are pulled out, a dentist for the survey said.

Of 16,000 cases of serious illnesses among the families surveyed, more than half had received no medical care whatever. One out of three births had not been attended by a physician. Yet the total amount of unpaid doctors' bills was close to half a million dollars.

Among the white wives under 45 years old, 41% had been lacerated in childbirth; the figure was 66% for those over 45.

Incidence of syphilis among the white people surveyed was low, only 0.6%. It was ten times as high among the colored families.

Hookworm is a serious problem, but varies in prevalence in different localities from 15% to 38%.

Among 4,333 white persons of all ages in eight states, 48% had defective tonsils.

Families are large among these farm people. More than 43% of the mothers studied had had five or more children and one wife out of every ten had given birth to ten or more children. One mother had 19 children.

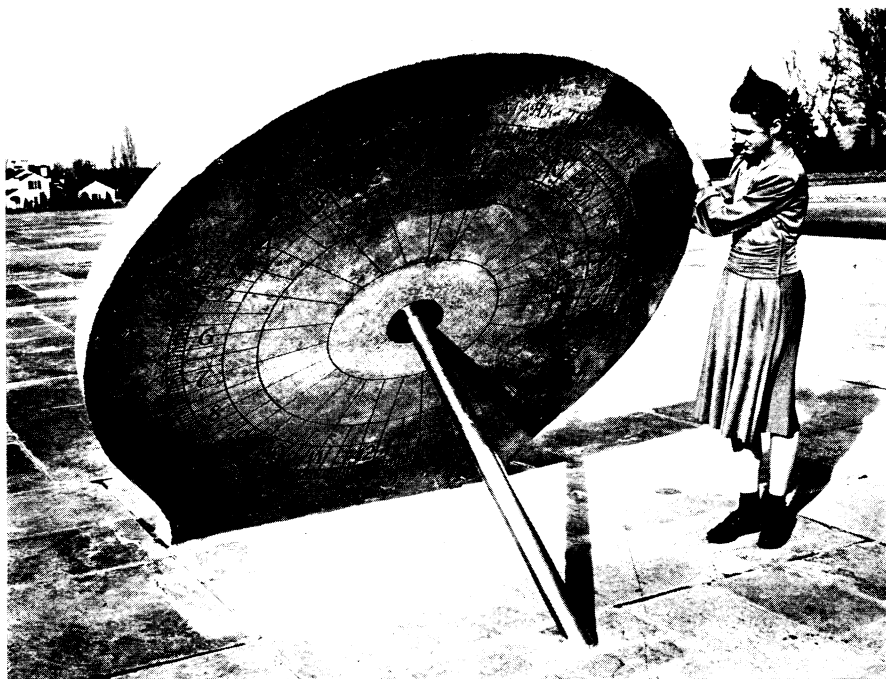
*Science News Letter, May 31, 1941*

#### HOROLOGY

### Seven-Foot Stone Disk Shows Sun Time

A 3300-POUND sandstone sun dial, seven feet in diameter, has just been erected in Mountain View Park, Denver. It is of the equatorial type, instead of lying flat like most such dials—that is, its disk is parallel to the equator.

The gnomon, or pointer for casting the shadow that shows the time, is the stainless steel shaft that supports the dial, passes through its center like a hub, and projects on the other side. The shadow falls on the south side of the dial, shown here, during winter, or between the fall and spring equinoxes. The



*A student from a nearby school examines Denver's new sun-dial and finds that it's 3:10 p. m.*

rest of the year the sun shines on the north side, not shown here.

Stephen A. Ionides, Denver engineer whose hobbies include astronomy, the calendar and time-measuring instruments, designed the dial at the request of George E. Cranmer, Denver's manager of parks and improvements, who saw a dial like this once in the Far East.

Mr. Ionides said there are only four days a year when the dial and a watch will agree exactly on the time. In the middle of February, a watch will be 14 minutes and 20 seconds faster than the time shown on the dial; in November, the watch will be 16 minutes and 20 seconds slower than the dial.

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#### BOTANY

## Mysterious Chinese Drug Proves New Plant Species

### Made From Lo-Han, Household Remedy for Colds and Digestive Upsets Is a Kind of Gourd Cured by Heat

"LO-HAN," widely used Chinese drug of hitherto mysterious origin, has finally been traced to its origin, proved to be a new plant species, and given a name of its own, by Dr. Walter T. Swingle of the U. S. Department of Agriculture.

The drug, widely used in China and in Chinese communities in this country as a household remedy for colds, sore throat and minor digestive upsets, is a kind of gourd, cured by heating over a slow fire. Its pulp, intensely sweet, is used in making a kind of sweet soup, not palatable

to most Occidentals. The fruits command a high price—about 20 cents apiece in Chinatown stores in this country.

An expedition sponsored by the National Geographic Society finally traced the lo-han to its lair. It is not grown by Chinese, but by a primitive people known as the Miao, in the rainy mountainous interior province of Kwangsi.

The lo-han fruits are produced by vines, of which only the ones bearing female flowers are cultivated. The Miao, primitive though they are, have learned

the trick of hand-pollinating the female flowers with male flowers gathered wild in the woods. They sell about a thousand tons of the fruits annually to Chinese merchants, for transport to the coast cities and for shipment abroad. The flowers are described as an inch and a half or more in diameter, with yellow corollas. The fruits, when fresh, are greenish yellow or dull reddish brown, ranging from hen's-egg to goose-egg size.

The plant has been identified as a member of a large genus that ranges

throughout the Old-World warm lands, known as *Momordica*. Dr. Swingle has named the new species *Momordica Grosvenori*, in honor of Dr. Gilbert Grosvenor, president of the National Geographic Society, who, he states, "for many years has encouraged liberally the geographic and botanical exploration of China." The new name and a technical description are published in the *Journal of the Arnold Arboretum of Harvard University*.

*Science News Letter, May 3, 1941*

## PHYSICS

## Light Falling on Diamond Is Changed In Wavelength

Phenomenon Called Gateway to Fundamental Knowledge Of Highest Value by Prominent Indian Scientist

CHANGE in color, or wavelength, of light when, for example, it falls on a diamond, and is scattered by it, is proving "a gateway to fundamental knowledge of the highest value," regarding the structure of matter in the solid state. So stated Sir Chandrasekhara Venkata Raman, leading Indian physicist, director of the Indian Institute of Science at Bangalore, Mysore, who was awarded the Franklin Medal of the Franklin Institute.

Since he was unable because of war conditions to come from India, the medal was received on his behalf by Sir Gerald Campbell, British minister to the United States. In a paper sent by Sir Chandrasekhara, a summary was given of some of his important researches.

"A transparent crystal traversed by a beam of light exhibits an opalescence due to diffusion of the light by the ultimate structure of the solid," he said. "The phenomenon is strikingly evident when a beam of sunlight traverses a block of transparent ice. It is often possible to find extensive portions in a clear block of ice which are quite free from inclusions, and the track of the sun-beam through such regions appears of a sky-blue colour, the intensity of the opalescence being about 30 times greater than the intensity of a similar track in dust-free air, but only a fraction of its intensity in dust-free water. The finest specimens of transparent quartz exhibit a similar effect, the opalescence, however, being less intense than in ice."

Early in 1928, Sir Chandrasekhara continued, he found that when a crystal,

or a liquid or solid, was illuminated by light of but a single wavelength, as from a mercury lamp, the light which was scattered included other wavelengths. These were revealed by the spectroscope. The difference in wavelength was found to be characteristic of the substance.

This, of course, is quite different from the colors which one sees in a crystal such as a diamond, when white light shines on it. In that case, all the colors visible are contained in the original illumination.

"On the principles of the wave-theory of light," he stated, "an ideal homogeneous crystal cannot scatter light." However, he proposed that a pulsation of the network of atoms which make up a crystal might cause such scattering if it took place in a certain relation to the light falling on it.

The wavelength shift in a diamond was studied as its temperature was raised. There was a change in amount of the shift, because the diamond expanded, and the light had a greater thickness to penetrate. However, there was no increase in the brightness of the altered color, as there would had it been due primarily to the effect of heat. Consequently, Sir Chandrasekhara concludes that the pulsations in the crystal which cause the scattering of light are caused by the light itself.

From these researches, he declared, it is possible to learn important information about the way matter is put together in the solid form.

*Science News Letter, May 31, 1941*

## POPULATION

## American Republic That Never Saw Census Man

AN American republic that has never seen the census man was described to the Population Association of America by Dr. Forrest E. Linder, technical expert of the U. S. Bureau of the Census.

In Haiti, the little country whose people have never been counted, the difficulties which would face a census enumerator would be enormous, Dr. Linder said.

The Island of Haiti is extremely mountainous, rising in some places to almost 9,000 feet, and is covered with a dense tropical vegetation so that travel in many parts is almost impossible.

There are roads, mostly on the coastal plains or near the large cities. But Dr. Linder explained, Haiti has had a long history of wars and revolutions, during which the fighting armies would sweep along the principal roads and travel lanes, burning and destroying the homes and crops of the peasants. For this reason the Haitian peasant has traditionally avoided building his home along the highways. Instead, he hides it away from the roads, behind trees or rocks.

A mountainside, Dr. Linder said, might be very densely populated and yet on first glance no sign of human habitation can be seen.

"In Haiti," he declared, "one can stop in the midst of a dense and apparently uninhabited jungle. Soon he will be surrounded by a group of curious Haitians who seem to have come from nowhere, but who actually live within a short radius."

In addition to these obstacles, the attitude of the Haitian peasant would stand in the way of a census taker. Illiterate and suspicious, Haitian peasants assume that any counting will involve something to do with taxes or the army.

Lack of a census in Haiti is but one of many factors that make it difficult for the statistician to obtain any true picture of the population of the Caribbean area, Dr. Linder told the meeting. In the many different government units of this area, the population data collected, methods of obtaining them, and accuracy of the results are different.

Illiteracy interferes with the collection of facts about the population. This is estimated (or guessed) to be as high as 95% in Haiti, 86% in Guatemala, 72% in Venezuela and Nicaragua, 67% in Colombia, 47% in Jamaica and 24% in Costa Rica.

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