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apparently pedestrians, crossing from the South American mainland over a land connection long since sunk into the sea. Along the Greater Antilles to the east, however, they give evidence of having traveled by air, the lines of distribution lying approximately in the direction of the most frequent hurricanes.

Racial Mental Differences

"We are driven to the conclusion that there is a constitutional, hereditary, genetical basis for the differences between the two races in mental tests."

This was the conclusion resulting from a series of mental tests of whites, Negroes and mixed bloods in Jamaica, conducted by Dr. C. B. Davenport of the department of genetics, Carnegie Institution of Washington.

Groups of individuals of the two races and their crosses, all of approximately the same social and educational levels, were given mental tests for aptitudes in a number of different fields. In some, the whites showed very definite superiority. These included tests intended to bring out capacity to size up a situation, use common sense on it, reason it out.

But the results were by no means one-sided. The Negroes beat the whites in certain memory tests. In musical aptitudes there was more or less of a stand-off: the score of the white race was higher where a sense of harmony was being tested, but in the more elementary matters of pitch and rhythm the Negroes were more acute.

Locates Nucleus of Universe

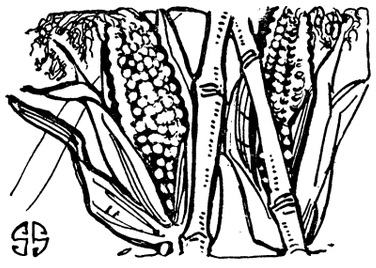
The nucleus of our "universe"—the galaxy of stars of which the sun, the Milky Way and all the other stars that we can see are part, has now been located. This discovery has been made by Dr. Harlow Shapley, director of the Harvard College Observatory.

This nucleus is in the same direction as the constellations of Sobieski's Shield, Ophiuchus, Sagittarius, Scorpion, the Southern Crown, the Altar, the Rule, and the Centaur. The latter four are all groups that can only be seen from the southern hemisphere of the earth. As we see it, the nucleus extends for about fifty degrees along the Milky Way, in these constellations. Its distance from us is about 47,000 light years. A single light year, which is the distance that a (*Turn to next page*)

NATURE RAMBLINGS

By Frank Thone

Natural History



Corn

The Thanksgiving Day table offers up a great variety of things native to America: the turkey and its accompanying cranberry sauce; white potatoes, sweet potatoes, tomatoes, squash, pumpkin and a postprandium of pecans, peanuts, Brazil nuts, black walnuts, chocolates and tobacco.

But of all the gifts which the primitive Indian agriculturists presented the European settlers—or which aforesaid settlers took from them without thanks—the greatest has been corn. Corn probably originated in the South American highlands but by the time the white men came its cultivation had spread as far north on this continent as the climate would permit, so that from Columbus onward every European comer met it. Chance caches left by the Pequots and not too conscientiously acquired by the Pilgrims saved Plymouth Colony more than once during the terrible first winter of 1621.

So completely did this new grain come to dominate the agriculture of the new settlements that it appropriated a name from the English language, just as the speakers thereof had appropriated it and the land whereon they raised it from the original owners. In seventeenth-century English, "corn" was a collective name for all kinds of grain—wheat, barley, rye, and all the rest—and that is what a Britisher still means when he says "corn." When he talks about our corn he calls it maize. The first settlers began by distinguishing the aboriginal grain as "Indian corn," but presently, with typical New England thrift of words, they simply called it corn. Another mark of dominance of maize in American agriculture is our new name, "small grains," for what our British cousins call "corn."

Radio to Moon?

Physics

Radio communication with the moon is not impossible after all. At least, it would be possible if there were people there to receive the messages. Radio waves can actually leave the earth, for at least a million miles. They are not completely stopped by the Kennelly-Heaviside layer, which has been supposed to act as an opaque screen to the waves.

This announcement is made by Dr. Carl Stormer, famous Norwegian physicist, in a communication to *Nature,* the English science journal. He has found that radio waves of about 31 meters length may give echoes that return as long as 15 seconds after transmission. Radio engineers have frequently observed an echo after about a seventh of a second, due to the waves traveling around the earth. They have also detected the return wave, reflected from the Kennelly-Heaviside layer. The newly observed echo, however, takes so much longer that it can not be due to either of these causes.

The long echo was first noticed by an Oslo radio engineer, Jorgen Hals. He communicated (*Turn to next page*)

Fight "Monkey Law"

Evolution

Arkansas courts must decide whether Arkansas schoolrooms shall continue to have dictionaries and encyclopedias in them, is the opinion of J. P. Womack, State Superintendent of Public Instruction. He holds that if the law should be interpreted as meaning that a reference book is a textbook, then even dictionaries must go. But a court decision will be necessary to decide the point, and in the meantime the reference books stay.

This raises a dilemma for the Arkansas schools. Offending textbooks may be removed promptly, and the lips of teachers sealed on penalty of loss of their jobs and a stiff fine, but in the meantime, easily accessible to every curious youngster, there remain the encyclopedias, all of which contain articles on evolution.

A legal test of the new statute may be initiated in the near future. A committee of leading citizens of Arkansas who oppose the law are now in correspondence with the University of Arkansas chapter of the American Association of University Professors, and their decision as to appropriate action is expected daily.

The passage of the Arkansas anti-evolution law (*Turn to next page*)

Radio to Moon—*Cont'd*

his results to Dr. Stormer, who then arranged for special signals from the large radio station of the Philips lamp works at Eindhoven, Holland. Dr. Stormer himself heard echoes from these at intervals of from 3 to 15 seconds after transmission. His observations were verified by Dr. van der Pol at Eindhoven.

The speed of radio waves is well known; it is the same as that of light, 186,000 miles a second. In 15 seconds, therefore, the radio waves have traveled at least a million miles away and back. This is about four times the distance to the moon.

Dr. Stormer thinks that the echoes are caused by a layer of electrons which come from outside the earth, particularly from the sun. The magnetic field of the earth deviates them, so that they form a vast hood around the earth, but reaching the earth near both magnetic poles. Within it there are no electrons. The radio waves travel out to this hood, far beyond the moon, and then are reflected back, he thinks. Whether or not some may even penetrate the electron layer, and actually travel to the other planets cannot now be determined.

Science News-Letter, November 24, 1928

"Monkey Law"—*Cont'd*

will be the signal for a stiff fight by the American Association of University Professors for the right of their colleagues to teach science according to the laws of nature rather than according to the dictates of the anti-scientific forces of Southern rural districts. This was indicated by Prof. A. O. Lovejoy of the Johns Hopkins University, prominent in the councils of the Association.

"We did not take part in the pre-election fight over this law," said Prof. Lovejoy, "because we knew that the people in Arkansas would be sensitive and resentful about outside interference. But now that it is on the books it can be attacked—and we think successfully—on constitutional grounds. The American Association of University Professors will probably take action at an early date."

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Tokyo has set aside parts of 200 streets for children to play in after school hours.

A method of putting out fires by freezing the flames with solid carbon dioxide at 100 degrees below zero has recently been devised.

National Academy—*Cont'd*

beam of light will traverse in a year, measures about 6,000,000,000,000

Next to the galaxy itself, or the other galaxies which we see as spiral nebulae, it is the hugest thing ever measured by man. It extends for about 29,000 light years in the direction in which we look at it, and is about 16,000 light years thick. The center is in the constellation of Sagittarius, the archer, a group that is now low in the western sky just after sunset. Some years ago Dr. Shapley found that this region was the center of a supersystem of the globular clusters of stars that appear in various parts of the sky.

"Apparently," said Dr. Shapley, "our entire Galaxy rotates about this nucleus."

The method by which he found the nucleus and measured its distance was with the use of the changes in light in many variable stars. These particular stars, known as Cepheid variables, change their light in a peculiar way, from which the astronomer can calculate their distance. Another type of variable star, known as the long period variables, was also employed.

In proving the existence of this nucleus, Dr. Shapley has furnished a new proof of the similarity of the Galaxy, or "universe" of stars in which we live, to the spiral nebulae. Thousands of these are known, and were shown several years ago, by Dr. Edwin P. Hubble, of the Mt. Wilson Observatory, to be stellar systems beyond the limits of our own. As a nucleus is a characteristic feature of these nebulae, and as they apparently rotate around them, it now appears more certain than ever that we actually live in a spiral nebula.

Are new mountains beginning to grow along the Atlantic seaboard of America?

At least slight indications that such may be the case were called to the attention of the Academy by M. R. Campbell of the U. S. Geological Survey. Mr. Campbell has made a study of geologically recent gravel deposits on the old river terraces on the Potomac, Susquehanna and Schuylkill rivers, and has found them bent upwards at three different places. The arching is not great, but it is sufficient to indicate upfoldings in the deeper layers of the earth, taking place long after the mountain-building movements that gave rise to the Appalachian system.

Science News-Letter, November 24, 1928