Solar System Rushing Through Space

Physics

The earth and the rest of the solar system are rushing at a rate of some six miles a second toward the portion of the sky in which is seen the constellation of the Dragon, Dr. Dayton C. Miller of the Case School of Applied Science, Cleveland, has discovered.

That there are at least twelve different experimental evidences of such a cosmic motion of the solar system is announced by Dr. Miller for the first time in a report to the National Academy of Sciences. Among these are the famous ether drift tests that he has been making for the past decade. This year's tests were made at Cleveland within 300 feet of the location of the original Michelson-Morley experiment on ether drift upon whose supposed negative result Einstein supported his theory of relativity. Dr. Miller, on the basis of a reinvestigation of the original test data and thousands of observations of his own on Mount Wilson and at Cleveland, concludes that the original experiment of 1887, cited in every textbook as proof that there is no ether, in reality shows the same sort of motion that he has found in his much more extensive repetitions of the experiment.

At present Dr. Miller has no theory to account for the cosmic effect he finds in his own experiments and the observations of others. But he urges scientists to consider the evidence that such cosmic motion is real and needs explanation. Moreover, he has found a periodic effect, detected by his interferometer, which is in accord with the theory of the experiment but which has never before been taken into account in the computing of the results.

In a wide variety of observations, Dr. Miller has found confirmation of his ether drift results. Independently, both the Berlin astronomer, Courvoirsier, and the director of the Paris Observatory, Esclangon, found peculiarities in the location of stars that can be explained by a motion of the solar system. The French astronomer also found evidence for the motion in observations of stars passing behind the moon, earth tides and ocean tides. By studying the reflection of light from a mirror, Esclangon found strong evicence for an "optical dissymetry of space" which can be explained by an ether drift. The direction from which the powerful cosmic rays come into earth from outer space was found by German scientists to agree with the idea of a motion toward the part of the heavens described astronomically as having a right ascension of 17 hours. And observations made by Americans on the non-magnetic ship "Carnegie" show a maximum cosmic ray effect from that direction.

Several mysterious discrepancies in more ordinary astronomical and physical observations, such as the constant of aberration, star places and clock corrections, can be explained by the existence of an ether drift, Dr. Miller said. All of these show a rushing of the sun and its family toward the part of the sky that can now be seen by facing north on a clear evening and looking about half-way up from the horizon. The astronomers designate that portion of the sky as about 16½ to 18 hours right ascension and about 60 degrees declination north. There shine the stars that seemed to the ancients to form pictures of the Dragon and Hercules.

In that direction our solar system, carrying us along, is headed if Dr. Miller's conclusions stand the test of time.

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U. S. May Lose Cotton Supremacy

Agriculture—Economics

Cotton is still king in the Southland, but his throne is a bit uneasy under him, and in the course of a few years he may have to share domain with younger King Cottons who are growing up in other lands. This is the gist of a prophetic report to Economic Geography, by Prof. Earl C. Case of the University of Cincinnati.

The very factors that helped to establish the southern part of the United States as the leading cotton-producing area in the world are now helping in its decline, and in the rise of rival cotton regions. Our cotton belt is a compact block of fertile soil with a climate well suited to cotton growing. But the fertility of the soil is declining, and the climate has been as favorable to the enemies of cotton—boll weevil and the rest—as it was to the cotton itself. Bad years affect the whole area and may cut down the yield fifty per cent., because it is all in one place; whereas cotton lands elsewhere in the world, being cut up into smaller and scattered blocks, escape in most parts when disaster visits any particular point.

Another important factor that is threatening the supremacy of American cotton is the rise in the cost of cotton-farming labor in this country. Even though the negro and "poor white" labor of the South is among the worst-rewarded of all American agricultural work, its wage is still many times higher than that of cotton-field workers in South America, India, Egypt, the Sudan and China. And the northward migration of negroes that has been going on ever since the new immigration laws cut down the supply of unskilled laborers in northern industrial plants is seriously cutting into the rural population of the South.

The apparent determination of British cotton spinners and weavers to reduce the degree of their dependence on American cotton by increasing the quantities of the fiber grown "within the Empire" is another influencing factor. Great new cotton areas have been opened up within the past few years in India, in the Sudan and in Tanganyika; and the cotton fields of Egypt still have strong British connections in spite of the changed political status of that nation. South American nations, notably Brazil and Argentina, are making strong efforts to become at least partly self-dependent.

China, one of the greatest cotton markets of the world, now raises a great deal of low-grade cotton. Prof. Case believes that the Chinese farmers, though the world's most obstinate conservatives, may in time be persuaded to introduce improved varieties and to adopt improved cultivation methods. If and when that happens, China will need a great deal less of foreign cotton.

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An apparatus known as the planchute lands entire airplanes as the parachute lands the individual.

Experiments show that a female oyster five inches long and four inches wide discharges 109,000,000 eggs.

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