Reno-Sparks district—in 1920, its establishment in this county being of probably not more than a year's duration. This is an interval of at least fifteen years, instead of the two years indicated in the statement quoted. It was first found in Sierra County, California, in 1923 and in Plumas and Lassen Counties in 1925. A reference to the map of California will indicate that the insect was halted, not at the state line by the vigilance of the quarantine officials, but at the line of the Sierras in all probability by the natural barrier of the mountains.

That the plant quarantines have certain possible protective values may freely be admitted. Just how far those values extend and how to obtain them and still avoid the dangers that have been pointed out, how to obtain them at a price that has a proper relation to that which is bought, how to serve one portion of the population without infringing upon the equally just rights of another part—these are serious problems. That they can be solved and the quarantines maintained is debatable. The arguments against the quarantines are real; the solution is not to be obtained by ignoring them. It would seem desirable for the supporters of these measures to enlarge the range of their view sufficiently to include a larger proportion of the facts of the situation.

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HAIR GROWTH AND PREGNANCY

IN studying the rate of hair growth on guinea-pigs by the method of observing the regeneration of hair on shaved areas, it was noted that in pregnant females the number of hairs which regenerate reaches a minimum at the time of delivery. This observation is of special interest since the literature records conflicting observations on hair growth during pregnancy in women; references concerning increased hair growth during this period are quite as numerous as references to a retardation of hair growth or quiescence of the follicles.

In order to test the constancy of this phenomenon, the backs of a series of guinea-pigs were shaved weekly and observed over a period of six months. The amount of regeneration was computed by counting the number of follicles in the shaved area (a two centimeter square) and noting those which were active and those which were in a resting stage. This series of animals was composed of five unmated males, five virgin females, two breeding males and ten breeding females. In view of the possibility that the condition observed might be due to the cyclic or seasonal activity of the follicle, the males and the virgin females were used to control such possible factors.

The regeneration of the hair in the shaved areas in all control animals was uniform (approximately 25 per cent. of the follicles being in an active state), whereas in all pregnant females the number of hairs regenerating was noticeably less by about the third week before delivery and continued to decrease until delivery, at which time the minimum regeneration was noted (less than 1 per cent.). After delivery the follicles remained in a quiescent state for approximately two weeks. During the third week postpartum the number of regenerating hairs slowly increased and by the end of the fourth week the rate of regeneration had apparently returned to normal.

In some of the pregnant females the hair came out in quantities, leaving areas in the region of the back and sides practically devoid of hairs. This condition occurred in varying degrees.

These observations on the guinea-pig seem to indicate that there may be a negative correlation between the regeneration of hair and pregnancy. At the present time a larger series of guinea-pigs is being observed and full details of the results of experiments now in progress will be published.

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SYMBIOTIC MITES USED TO SEPARATE SPECIES OF A GENUS OF BEES

IN recent years it has been recognized that the parasites found on various species of a group of animals may be able to throw light on problems of taxonomy and general geographical distribution. What is proving to be a very interesting correlation of host and symbiont is being worked out for a group of mites of genus *Dinogamasus* and their hosts, certain carpenter-bees at present considered as members of genus *Mesotrichia* Westwood. These carpenter-bees are mainly confined to the Ethiopian and Oriental regions and one species occurs from Egypt to the northwest provinces of India.

In the first abdominal segment of the female bees there is a peculiar chamber formed by an inflated invagination of the chitinous exoskeleton. Within this pouch, or chamber, which has no opening into the body of the bee, a few or a dozen or more of the little mites may be found.

The mites which I have collected from the African bees fall into three distinct groups and their hosts seem to belong to corresponding groups. The mites examined from the Oriental regions also seem to belong to a few distinct groups all readily distinguishable from the African forms. Usually each species of bee has its own characteristic mite regardless of a wide geographic range. In some cases very closely allied bees have the same kind of mite.

A very fine example of the value of knowing the correlation of host and symbiont was demonstrated when studying the disputed *Mesotrichia aestuans* and *M. confusa* of India. *M. aestuans* is a recognized north African form, and within its pouch there is a characteristic African mite belonging to the *braunsi* group which I have named *Dinogamasus inflatus* because of certain swollen hairs on the legs. There has been more or less uncertainty whether the *confusa* of the Orient is the same as the African *aestuans*. Pérez recognized the two forms, using the margin of the clypeus, the clypeal keel and the frontal keel as the main distinguishing features. It has been recently claimed that these species are not distinct.

It was interesting to find that two specimens of these disputed bees which I had from northern India had the African *Dinogamasus inflatus* in the pouch, and that another bee labeled from Sikkim, India (from the Bingham collection, Berlin Museum), as well as other specimens of *confusa* from other Oriental localities, had mites belonging to the Oriental group.

Dr. T. D. A. Cockerell examined the hosts and upon comparison with an African *aestuans*, taken at Suez, he found that the specimens from northern India (Chikar Kot, N. W. Prov., and Jammu, Kashmir; Frank Benton collector, National Museum specimens) are the genuine *aestuans*, thus evidently belonging to the Palearctic fauna which extends over from northern Africa. The other form of carpenter-bee he determined as the true *confusa*, and this, belonging to the Oriental region, naturally should harbor a distinctly Oriental species of mite.

Another case of the mites helping to distinguish between slightly differing hosts may be cited. Two specimens labeled *confusa*, one from Singapore and one from Trang, Siam, yielded closely related but nevertheless distinctly different species of mites. Examination of the hosts showed that the one from Trang was *M. confusa* var. *viridissima*. It is conceded now that this form should be considered a valid species *M. viridissima*.

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PROFESSOR EINSTEIN'S ADDRESS AT THE UNIVERSITY OF NOTTINGHAM[1]

PROFESSOR EINSTEIN does not wish you to accept his remarks on credit, but wishes to explain in the clearest way possible what he considers to be the trend of modern physics. What he has to say is his purely subjective opinion and it is by no means generally recognized. He thinks that he can give you at least some outline of what his view is of the future of the subject, but he does not want his remarks to be regarded as assertions. He wants them to be regarded rather as humble expressions of his opinion.

He will now concentrate our attention on the fundamental conceptions which lay at the beginnings of the foundations of physics. Professor Einstein makes clear what the prescientific view was and explains that the primitive concept was that of a rigid body and that relationships in the positions of rigid bodies preceded all ideas of space; that space was not a primary conception and that it was only through dealing with the position and relationships of bodies that the idea of space later emerged.

These ideas of space were due, of course, to contact relationships between bodies, and it is interesting to know that the classical science of the Greeks did not operate with space but exclusively with bodies. A rigid body is at the bottom of all the conceptions of geometrical space in Euclid.

The idea of a space continuum entered into science only when analytical geometry was invented by Descartes. How did the idea of space originally arise? The Greeks approached position in geometry by considering the position of bodies with regard to each other. This, of course, suggests a body of reference. We are familiar with coordinate systems in geography in the way in which they were used, for instance, in maps of geography.

Space appears expressed in body-like form by means of these axes of reference. This is really the way in which space as such entered into geography in the first place, and there was no physical basis for it. Relative motion occurs only with reference to one or more bodies. The great change took place in that view when Newton propounded his mechanics.

The fundamental idea of Newton's mechanics was the introduction of the idea of force—that is to say, acceleration. Acceleration can be imagined only in reference to a really rigid body. It is a wonderful tribute to Newton's genius that he could go so far as to give space a definite physical reality.

He included it among the other realities. This is an aspect of his theory which has not been understood or has been neglected or misunderstood by some of his followers. Professor Einstein is very anxious

[1] The address given in German on June 7 was translated by Dr. I. H. Brose. A stenographic report of Dr. Brose's translation was cabled to *The New York Times* and permission has been given for publication in SCIENCE.