during August, 1935. Cysticercoids were located in the abdomens of the ants; 11 ants contained 1 to 3 cysticercoids and one ant harbored 8. *Tetramorium caespitum* is cosmopolitan in distribution and has such varied feeding and nesting habits that its control may be a difficult problem.

Previously, snails have been considered as intermediate hosts for *R. echinobothrida,* but on a morphological rather than an experimental basis. Direct development also has been reported, but confirmation of this is lacking; however, development involving an intermediate host does not preclude the possibility of a direct development.

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SULFOCYANATE TREATMENT OF MANGE IN GUINEA PIGS

THE problem of controlling mange in my colony of guinea pigs has been difficult for several years, due to the fact that infected dogs have been brought to the school from time to time. Sulfur remedies ("flowers of sulfur," resorcinol, and lard or lard substitute) have been effective in most cases, but they have certain disadvantages: (1) time required for preparation; (2) time required for applying; (3) difficulty of getting the materials in contact with the skin; (4) expense. If the disease had been of long standing so that the animal had lost most of its hair on the sides and hips, it was almost impossible to effect a cure. Such animals often lost weight and finally died.

Lauryl sulfocyanate,[1] the compound being used as an insecticide, was selected as a posisble remedy for the mange. The pure compound was dissolved in cottonseed oil and a 2 per cent. solution was used for the tests. The solution was easy to apply and it proved to be a quick and effective remedy. Because of the cost of the pure compound, a technical preparation, which is being sold under the trade name "Loro,"[2] was also tested for its effect upon the mange. This preparation consists largely of lauryl rhodenate (sulfocyanate), but contains a certain amount of rhodenates of octyl, decyl, myristyl and cetyl alcohols. The "Loro" contains 50 per cent. of the active ingredients, the remainder being an emulsifying and wetting agent which enables one to use it in aqueous solution. A 5 per cent. aqueous solution of this preparation was applied by means of a rubber sponge. This solution also proved to be effective in the control of mange in the guinea pig. It was used on several guinea pigs that had not recovered after several applications of the sulfur preparations and all recovered after two treatments.

If any of the above remedies are applied in cold weather, it is well to keep the animals in warm quarters, since these preparations have a tendency to cause the hair to separate into small bunches, thus allowing the animal to chill easily.

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SCIENTIFIC BOOKS

FARADAY'S DIARY

Faraday's Diary. Edited by THOMAS MARTIN, M.Sc., and published by order of the Managers of the Royal Institution of Great Britain, with a Foreword by Sir William H. Bragg, O.M., K.B.E., F.R.S. G. Bell and Sons, Ltd., London, Vols. VI, VII and Index.

WITH these volumes this important work is completed. The earlier volumes were reviewed in SCIENCE of January 13, 1933, and of August 23, 1935. The volumes are sold only in sets, at the price of twelve guineas the set.

The highest praise can be given to the way in which this great task has been executed. The editor and his assistants, the publishers and the Managers of the Royal Institution deserve the warmest thanks and commendation from the scientific world.

Volume VI opens with the continuation of Faraday's study of magnetic lines of force, which was begun in the previous volume. This concept of lines of force was his most important contribution to physical theory. It directed attention to space or to a medium in space as the seat of the electric or magnetic actions exerted between bodies. When taken up by Maxwell and put into mathematical form it proved to be able to account for most of the phenomena then known and to predict others which were afterwards experimentally verified.

The rest of the volume contains many experiments, mostly on the magnetic properties of bodies. In particular, there are tests of various substances for paramagnetism or diamagnetism, and a study of magnecrystallic action made with a torsion balance. Trials made to discover an action of the magnetic field on the spectrum and the production of electricity by the passage of light through crystals yielded no results.

Volume VII contains a long study of the relations of gold and other metals to light, also an attempt to

[1] Roger Adams, University of Illinois, Urbana, furnished the pure lauryl sulfocyanate.

[2] The Grasselli Chemical Company, Cleveland, supplied the "Loro."

detect the time required for the transmission of magnetic effects through space, and another attempt to find some relation between gravity and electricity. The Diary proper ends with a short study of regelation. The number of the last paragraph is 16041. There have been added a few entries found in scattered manuscript notes which are sufficiently consecutive to be worthy of publication. The most important one of these sets of notes presents the study, with Mr. Gassiot, of the stratified discharge in vacuum tubes. The most interesting one is that with which the record closes, on March 12, 1862, in which Faraday describes his endeavor to find some effect on the lines of the spectrum when the source of the light was in a magnetic field. No effect was perceived. The effect was later discovered by Zeeman, who, in his paper of 1896, mentions Faraday's experiment, and ascribes its failure to the inadequate resources of the period. This experiment is probably the last one tried by Faraday.

The Index is in a separate volume of sixty-four pages. In it the entries are often grouped under general heads, such as Electrostatics, Gravity and Electricity, Magnetism, etc., very much as they are given in Faraday's own index to the "Experimental Researches." An interesting feature is the occasional inclusion of short quotations in Faraday's own words expressing his opinions about the matter which he is investigating.

Even in the years covered by these volumes, in which Faraday's health and memory were failing, he showed on occasion his wonderful rapidity of working. There are days in these years in which the work done compares favorably with that recorded in the days of his prime. He apparently could not work so often, but when he did he worked just as well as ever. That his output in these years contained no startling discoveries may depend on the fact that he had already made all the discoveries of major importance which he could have made with the appliances that he had at his command. At least nothing of any importance was done by experimental methods until after the lapse of over twenty years, when improved methods of obtaining high vacua made possible the work of Crookes, from which the modern development of physics may date its origin.

Nothing like this Diary has ever appeared in the history of science. Generally scientific investigators publish papers in which their discoveries are presented in an orderly fashion and in which only positive results are given. Here we have everything that went through Faraday's mind, and we can see the way in which his thoughts developed and took form in experiment. We see the failures as well as the successes, the trivialities as well as the great achievements. It exhibits his personal qualities, his intellectual honesty, his indefatigable persistence, his modesty and candor better than his papers do and more convincingly than can be done in any biography. It is without parallel as a revelation of the working of a great scientific mind.

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HUMAN ECOLOGY

Human Ecology. By J. W. BEWS. pp. xx + 312. London, Oxford University Press, 1935.

BOOKS which skirt the subject of human ecology are appearing in increasing numbers. They may not bear the title. The expression may be absent from their text. But if an author approaches human history as a problem involving the mutual reactions of mankind with a variant and shifting environment, he is writing human ecology; and the output of these works is abundant. The trouble is they are merely fragmentary considerations of a gigantic whole.

Complete success in such a task requires infinite knowledge. The partial success that can be regarded as a possible goal requires a synthesis of all science. A master of human ecology, therefore, belongs among the minor gods. What we must be satisfied with is an erudite inquirer who approaches the subject in a scientific spirit, but who, of necessity, overemphasizes the genetic, the psychological, the sociological or the physiographical aspects of the situation. We have here an example.

Mr. Bews, principal of the Natal University College, is a distinguished botanist, a student of bionomics, who has set out to apply the methods used in the more limited field in determining why we have become what we are. The reader will find the book instructive, because the author has a real flair for epitomizing the essential facts gleaned from the large, well-selected and up-to-date reference list. He will also find it engaging in parts where the plant lore and the ethnographic lore of Africa are considered, for Mr. Bews has first-hand knowledge of these matters. Whether he will gain any very clear insight into the way ecological factors have affected the trend of human evolution is something else. If he does, he must depend largely upon his own synthesis.

The work is introduced by General Smuts, who, since the success of his biological philosophy of holism or, as we call it in this country, emergent evolution, is as much in demand for introductions as the late president of Harvard was for cut-stone mottoes. Four chapters of background building follow, where man's heredity, his environment and his response to his environment are considered. Then comes a chapter on psychological doctrines. This is succeeded by two chapters on general anthropology and three chapters on the ecology of the wood gatherers, the plant cultivators and the herdsmen. Finally, there is a disser-