presence of the disturbance in a stand of red pine may not be evident to a casual observer until the invasion of parasitic fungi takes place.

Forking has been found on soils varying in pH from 4.5 to 7.5 and ranging in texture from sandy to clay loam. It has been observed in young natural reproduction as well as in plantations and in both mixed and pure stands. Investigations are being carried on in an effort to determine the primary cause and mechanism of forking. The evidence at hand strongly suggests a fungous origin.

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SELENIUM DEHYDROGENATION OF NAPELLINE

THE recent publication of Lawson and Topps[1] anticipates on one important point results obtained in this laboratory. These authors secured on selenium dehydrogenation of atisine, $C_{22}H_{33}O_2N$, a hydrocarbon $C_{17}H_{16}$, characterized by its picrate $C_{17}H_{16}\cdot C_6H_3O_7N_3$, orange needles, m.p. 129°, and its trinitrobenzene-derivative, yellow needles, m.p. 140°.

We[2] have obtained by selenium dehydrogenation of napelline $C_{22}H_{33}O_3N$ apparently the same hydrocarbon as picrate, orange needles melting at 130° (Found: C, 60 .95; H, 4.59; N, 9.78, 9.57. Calc. $C_{17}H_{16}\cdot C_6H_3O_7N_3$: C, 61.47; H, 4.23; N, 9.34;) The trinitrobenzenederivative crystallizes in dark yellow needles and melts at 138°.

Lawson suggested that the hydrocarbon is a substituted phenanthrene. Blount[3] has obtained a compound cevanthrol, $C_{17}H_{16}O$, by dehydrogenation of cevine, a veratridine derivative; x-ray measurements indicate the probability that cevanthrol is an alkyl phenanthrol. It is of especial interest to note that similarity of these reports, because a link between the aconitine and veratrine alkaloids is highly desirable.

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LUTHER BURBANK

To this writer it has seemed that it is high time some one told the truth about Luther Burbank. I believe I have read every report about him of any importance that has ever been published, but they mostly consist of fairy tales, sentimental rot and propaganda. Some have tried to relate facts but let their emotions get the better of them. Others were frankly hostile, and therefore biased. Exceptions to the above, of course, are the limited writings of Hugo de Fries, Vernon Kellogg, David Starr Jordan and L. H. Bailey.

I have undertaken the task of ferreting out the facts about this man, whose name (no matter what we may think of him) is almost a household word in many languages.

I find it necessary to see all the catalogues and price lists he ever issued in order that I may abstract them and evaluate all the items. I have searched libraries and private collections from coast to coast and have succeeded in finding more than a hundred pieces, but I am sure there are many more still lost. Private collections are my best bet and I, therefore, appeal to readers of SCIENCE to send me anything they may have among their old papers. If requested to do so I will gladly return them.

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SCIENTIFIC BOOKS

The World Around Us. A Modern Guide to Physics. By PAUL KARLSON. 293 pages, 8 plates. New York: Simon and Schuster, 1936. $3.00.

THE rapid development of physics in the past few decades has stimulated the interest of the layman in this subject, and has created a demand for articles and books explaining in everyday language the achievements in physics to the general reading public. To appreciate these achievements it is necessary to know something more about physics in general, and that is exactly what Karlson realizes. The first chapters are devoted to the question of "matter and motion," electricity and light waves. The next chapter deals with the conceptions of relativity, and in the last two chapters he treats the topics of light quanta and the new ideas which have been introduced in the development of the quantum theory. The Bohr atom, waves of matter, artificial disintegration, the uncertainty principle and causality and probability are discussed, and with an outlook on the new picture of the universe the book closes.

The usual objections against writings of this type by the educated non-scientist are, that the arguments are not formulated precisely enough, and that the analogies necessary, to obviate mathematical formulae, are too far fetched. It is particularly important, for a book of this type, to use the same terminology as the

[1] *Jour. Chem. Soc.*, 1640, 1937.
[2] *Jour. Am. Chem. Soc.*, in press.
[3] *Jour. Chem. Soc.*, 414, 1936.

scientific texts written for experts so as to make it possible for the layman to understand the meaning of the new terms, and to really "guide" him to some more advanced study.

Dr. Karlson's book first appeared in 1934 in Germany. The American edition opens with the startling statement, "the four elements of the ancients were something like the players in a pinochle game; pure speculation brought them together in the first place and an over-dose of poetic frenzy or excessive juggling with unknown quantities was forever disrupting the harmony of the group." To a lawyer or banker who is just as logical in his own work as the physicist is in his research, such a statement will produce considerable antagonism. Leafing through the book it becomes clear that this edition was translated by some one who is either unfamiliar with modern phrases used in physics or with their proper English equivalents. One finds for crystal lattice the term "trellis" (p. 10, etc.), for photographic plate, "dry plate" (p. 17), for vacuum pump, "mercury air pump" (p. 31), for energy of motion or kinetic energy, "movement energy" (p. 34), for the second law of thermodynamics, the "second fundamental proposition" (p. 44), for fluctuation, "oscillations" p. 50). But even the German is sometimes translated wrongly, as on page 91 where instead of "they" we find "you" (both correspond to the German sie!), and consequently the meaning is entirely misunderstood. Instead of loosened up, we find "relax" (p. 104); instead of filament generators, "heat generators" (p. 108); instead of image plane, "visual plane" (p. 129); instead of earth, "soil" (p. 186). Many other examples could be quoted. When we found that there occurred some serious mistakes in the discussion of physics, we decided to consult the German edition so as to find out whether these mistakes are contained in the original, or are peculiar to the American edition.

Let us say at once that Dr. Karlson's original German text fulfils every requirement one could set for a book of this type. There are hardly any mistakes in the statements of scientific principles (and of the abundance to be found in the American edition we will only quote a few: page 8, "on the wire leading from the *positive* terminal *twice* as much gas is formed as on that leading from the *negative*!"; page 29, "a lot of electrons would form a sort of x-ray in the neighborhood—a gamma radiation"; page 62, "this light (produced on the glass of an x-ray tube) consists of rays that go in straight lines perpendicular to the cathode —cathode rays"; page 79, statement connecting charge with osmotic pressure is wrong; page 84, "the swimmer rule: if a little man were to swim *north* with the electric current"—! and page 120, "it is only a difference in wave lengths which determines whether a given vibration shall be heard (!sic) by the ear as sound—seen by the eye as light.") All these wrong statements and many others do not at all occur in the German edition. It is really an astonishing and remarkable achievement in teaching that Dr. Karlson was able in a book of this type not only to give an introduction to classical physics and to give just the right amount of material necessary to introduce the most modern concepts, but also to choose analogies with such admirable skill that it is hardly possible to find any faults with most of them. It is also remarkable with what subtle timing he changes from analogy and introduction to scientific reasoning. In this way he has made it possible for a layman to remain interested, informed and stimulated. By using dialogues and discussions with characters of the past which are introduced in the most charming way, Dr. Karlson was able to bring to the mind of the newcomers the method of development in physics leading to our present outlook. The index in the German edition is something unique in itself. It is really a dictionary, giving at the same time the definition of each term and the connection in which it is used in the text. Finally the German edition contains a "pedigree" of the leading ideas in physics, showing the interlinkages between the different ideas as they developed.

All this has been eliminated in the American edition. Instead of the warm enthusiasm with which Dr. Karlson has introduced his fictitious characters in the different discussions, they have acquired a certain impishness, a superficial smartness which leads to discussions which have no connection with the topic or the chapter. (Needless to say the introductory statement quoted above does not correspond to the German original.) The clear and instructive summaries of any theory mentioned, which is so characteristic for Karlson's book, are in most cases omitted in the American edition. It reminds the reviewer of some of the screen versions taken from well-known classics which are supposed to cater to popular taste, and retain hardly anything of the spirit of the original text.

We think that in justice to the author and to the American public which is intensely interested in modern developments in physics, a new edition of Dr. Karlson's book should be prepared, eliminating the mistakes, the wrong terminology and restoring the charm and knowledge of the German original. Such an edition will not only help the layman to understand modern physics, but it will be an invaluable help to physicists and teachers of any science class in the presentation of the cultural aspects of physics.

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