lation. Dilution of the sol with pure distilled water gradually decreased the coagulation up to a definite concentration beyond which no amount of agitation or inoculation gave any precipitate. The effect of dilution, however, is not the same sort of straight line function as one finds in dealing with supersaturation in true solutions.

Immaculate cleanliness was observed throughout. All tests were carried out in sealed Pyrex tubes, thereby minimizing glass solubility effects and eliminating the influence of contact with cork or rubber stoppers. Since contact with Pyrex alone, without agitation, gave no coagulation even after several weeks, the possibility of adsorption or surface catalysis exerting any influence seems out of the question.

The results cited are merely preliminary. A thorough study of the observed phenomena is now under way in this laboratory.

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"FINGER PRINTS" OF MINERALS

RECENT developments in our knowledge of X-rays have made it possible to use them in the study of all sorts of solid matter. Truly solid matter consists exclusively of crystals each of which is composed of atoms having a perfectly definite and regular arrangement. These atoms form parallel planes in various positions through the crystal just as the hills of corn planted by machine on a level field form parallel straight lines in several positions across the field. The distance between any two adjacent planes determines the angle at which X-rays are reflected (in phase) by these planes. By exposing a finely powdered crystal to a beam of X-rays reflections can be obtained simultaneously from all the parallel planes in the crystal. These reflections make angles with the incident beam of X-rays which depend directly upon the distances between the planes of atoms. All crystals of the same kind produce reflections which are identical in intensity and positions, while two crystals which are not alike produce reflections which are unlike.[1] Accordingly, every kind of crystal can be made to produce its own characteristic X-ray pattern or autograph.

Scientists in this country and in Europe have obtained such autographs or "finger prints" and studied them in various ways. So far as known to the writer, no scientist nor institution has attempted to establish a reference collection of standard autographs, and the Department of Geology of the University of Wisconsin has undertaken this task.

It is evident that such autographs are most valuable as reference standards when they are obtained from substances whose nature and composition are fully known. Therefore, analyzed samples of all kinds of minerals are needed for the establishment of such standards. A very small portion of the material is sufficient—in some cases an autograph can be made from fifty milligrams of mineral.

In order to make it possible to identify X-ray patterns from unknown material it is important to make the collection of autographs from known material as complete as possible. At the present time about 550 autographs have been made, which include only 170 standards, the others being for purposes of identifying unknown minerals, for special problems relating to crystal structure, etc. The Department of Geology of the University of Wisconsin is anxious to obtain analyzed mineral samples to enlarge its collection of standard autographs as rapidly as possible. For this reason an X-ray pattern of such material will be supplied free of charge to any one supplying a sample together with an accurate chemical analysis.

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[1] A few exceptions to this rule have been discovered; most of these are easily understood.

CORRELATION OF MEXICAN BEAN BEETLE POPULATION WITH ORIGINAL FOREST TYPE

THE Mexican bean beetle (*Epilachna corrupta* Muls.) was first discovered in Ohio in 1923, having spread from northern Alabama in three years. Through the cooperation of the Ohio Experiment Station, the Ohio State University and the Bureau of Entomology, records of distribution were obtained which showed that it was present in about ten counties in the south central portion of the State of Ohio.

The distribution of the beetle in Ohio in 1924 presented an interesting problem. It was easily found, and in many cases was abundant in the southern third of the state and very scarce in the remainder. Mr. M. P. Jones, assistant to Dr. D. M. DeLong, who was engaged by the Bureau of Entomology during the summer on the bean beetle project, consulted with Dr. E. N. Transeau, of Ohio State University, regarding the explanation of this distribution. Dr. Transeau had just returned from a trip over the eastern part of the state and noted immediately that the map showing the area of greater population coincided quite closely with what was then known of the distribution of the original mixed mesophytic type of forest.

In 1925 serious injury to beans occurred in the southern portion of the state. In 1926 the writer carried on further studies in cooperation with the organizations and men mentioned above. It appears that there is a striking correlation between a map showing the economic damage done by the Mexican bean beetle and a map showing the original mixed mesophytic forest prepared by Drs. E. N. Transeau and H. C. Sampson and as yet unpublished. Economic damage to the bean crop in Ohio was confined to the habitat originally occupied by the mixed mesophytic forest in the southern third of the state, with the possible exception of two restricted infestations. This area covers, roughly, the territory south of a line running from Preble County on the west to Fairfield County and thence to Licking County and northeast to Columbiana County.

The distribution of the insect in Ohio[1] corresponds with the trend indicated earlier when studies were being carried on in the southeastern states.[2] It was noted in 1921 that the preferred habitat appeared to be the slopes and valleys in the mountainous or hilly regions.

Studies of evaporation and climate are being made with the aim of analyzing the observations made and to ascertain if such studies may be of value in affording an index for use in forecasting the limits of economic damage of an introduced insect pest in its new habitat. Dr. Transeau informs me that he will soon publish a paper in *Ecology* regarding this important principle.

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CONFUSION IN SCIENTIFIC TERMINOLOGY

THE writer agrees with Professor Uhler's protest regarding the present confusion in the terminology of science. The situation apparently requires the creation of an international commission, involving the English-speaking peoples, which might attempt to standardize the symbols and terms used commonly by physicists, chemists, engineers and mathematicians. A joint committee of the American Association and the British Association for the Advancement of Science should serve the purpose as well as any other representatives.

The International Electrotechnical Commission obviously could not function because the problem relates to English usage and is not limited to electrical subjects. A comprehensive effort toward promoting uniformity in electrical terms is embodied in the work of the Standards Committee of the American Institute of Electrical Engineers. These standards are not recognized, however, by other scientific or engineering interests and are not given sufficient attention by the electrical engineers themselves.

Over ten years ago the electrical engineers decided with good reason that "electrostatic capacity" should henceforth be called "capacitance." Physicists in general have not adopted the new term and in consequence the student passing from his physics courses to electrical engineering subjects is obliged to change his vocabulary. It is the practice of most electrical engineers to use "pound-foot" as a unit of torque, while mechanical engineers commonly use the "foot-pound." The confusion of the latter unit with the same unit of energy is a source of distress to students in elementary mechanics.

The writer has always surmised that the word "voltage," so commonly used to-day, was originally coined by a plumber while engaged in colloquial conversation with his helper. To be consistent one should substitute "amperage" for "current," "ohmage" for "resistance," "gaussage" for "flux density," "kilowatt-hourage" for "energy," etc. Indeed, if one caught the habit, and "garb" were used for "clothing" it should be plumberized into "garbage." If it is argued that "voltage" is justified by the suggestion that the unit is to be in volts in the same manner that "acreage" of land suggests that the unit be in acres, it is without foundation, since the volt is the only practical unit.

The oldest and most rational claimant for the title is "potential." "Difference of potential" or "potential difference" adds nothing to the meaning, since the term applies only to the condition between two specified points, just as we use the word "distance" and not "difference of distance." "Potential difference," moreover, usually involves the use of the clumsy symbol "P.D." Whatever term is adopted it is hoped that some effort may be made to rid from electrical terminology the chain of analogous terms, such as voltage, potential difference, pressure and tension, which only serve to confuse the student and add nothing to the clarity of the meaning.

The situation is further confused when no attempt is made to distinguish between electromotive force and potential. In an early issue of one of the first electrical engineering journals published in the United States (*The Electrician and Electrical Engineer,* of 1884) a writer says, "In fact the terms emf and potential (thus) have been indiscriminately employed in the same sense by writers on electrical subjects to the great confusion of the student." It is a curious fact that this confusion has continued for forty-three years. The amateur radio fan is oblivious of all this. To him everything is "voltage."

[1] DeLong, D. M. *Jr. Ec. Ent.*, Vol. 19, 1926, p. 247.
[2] Howard, Neale F. *Loc. cit.*, Vol. 15, 1922, p. 266.