physics, Washington Square College; Dr. Francis A. Jenkins, formerly of Harvard University, has become an assistant professor of physics at University College on the Heights.

New appointments at Cornell University include those of Robert E. Loving, of the University of Richmond, acting professor of physics; W. W. Nicholas, formerly National Research Fellow, acting assistant professor in physics, and John R. Johnson, of the University of Illinois, assistant professor of organic chemistry.

At the medical school of Western Reserve University, Dr. Howard H. Beard has been promoted to an assistant professorship of biochemistry and Edward Muntwyler has been appointed demonstrator of biochemistry.

Dr. Harvey A. Zinszer, acting professor of physics at Mississippi State College for Women, has been elected professor of physics and acting professor of mathematics at Hanover College, Hanover, Indiana.

Dr. Charles Sparling Evans, Ph.D., Princeton, has been appointed associate in geology at Bryn Mawr College.

M. A. Stewart, formerly instructor in biology at the University of Rochester, known to entomologists for his work on Siphonaptera, has been appointed instructor in biology at the Rice Institute.

Dr. Hobart A. Reimann, who recently finished his research work as a fellow in medicine of the National Research Council at the University of Prague, has been appointed assistant professor of medicine at Peking Union Medical College, Peking, China.

DISCUSSION AND CORRESPONDENCE

THE EFFECT OF X-RAY ON TRYOSINASE

The organic pigment melanin is considered to be the result of the interaction of tyrosine and tyrosinase. When mushrooms or potatoes are ground up with water the water contains a considerable quantity of the enzyme. This can be demonstrated by adding a few drops of the water extract to a dilute solution of tyrosine. This colorless mixture during the first few hours passes through various deepening shades of wine to become black after twenty-four hours. When either potatoes or mushrooms are X-rayed before their extraction with water, this extract invariably shows a decided increase in its powers of melanin production. This increase is in direct proportion to the strength of the X-ray dose. As far as the work has been carried exposures of 30, 60, 90 and 120 minutes at 30 KV., 22 ma., 26 cm. target distance result in increasing depths of color when added to a tyrosine solution that form steps sufficiently sharp to be obvious even in a photograph. Exposures over 2 hours and up to 4 hours produced no further perceptible change. From the results obtained with mice it seems probable that a very severe exposure of this enzyme would cause either a decrease or even a complete inhibition of its activity.

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DEFINING SOIL COLLOIDS

One of the most popular and widely studied and discussed problems at the present time in the domain of soils is soil colloids. And yet there are probably no two people interested in the subject who agree completely as to a definition of soil colloids. The concepts and definitions of soil colloids seem to vary enormously. Some people call soil colloids only soil particles of the very smallest size which have an upper limit of not more than .000005 millimeter, while other people call colloids soil particles whose upper limit is .005 millimeter and even .008 millimeter. It behooves us, therefore, to have a correct and standard definition of soil colloids.

Now the vital question is, what standard are we going to adopt upon which to base a standard and correct definition of soil colloids?

There are two apparent standards that present themselves—one is the size of the particles and the other the activity or energy manifestations of the particles.

In choosing one of these two standards, it is absolutely necessary to choose one that has or presents a natural transition or demarcation point which divides the soil material quite distinctly into colloidal and non-colloidal.

The activity or energy manifestations of the soil particles seems to meet the essential requirement of possessing a natural transition point which will divide soil material into colloids and non-colloids. For instance, such energy manifestation or phenomena as adsorption of water vapor, base exchange, heat of wetting, etc., are possessed only by the soil colloidal material and not at all or very little by the non-soil colloidal material.

A thorough examination of all the energy phenomena manifested by the soil particles that of the heat of wetting in water appears to be the most logical to adopt as a standard criterion for defining colloids.

The liquid to use in the heat of wetting measurement and hence, in the definition of the soil colloids is water. By using water all objections that might be raised as to the specificity of the heat of wetting between soil material and different liquids, are overcome, because water, besides being the most natural and universal reagent, it is the chief natural agent by which soil colloids have been formed. Water is mainly responsible for the formation and physical condition of the soil colloids.

If the heat of wetting phenomena is accepted as a criterion for distinguishing colloids from non-colloids then soil colloids could be defined as any soil material dried at 110° C. that will give heat of wetting in water irrespective of size of particles.

It has been found experimentally that nearly all the soil material classified as clay, and some of the very finest silt, give heat of wetting. This would include soil particles as large as .008 mm. and even larger in some soils. Above the very finest silt there is hardly any measurable heat of wetting. All the organic matter that gives heat of wetting would also be classed as colloids.

According to the above definition of soil colloids then, any soil particles which give heat of wetting, which may be .008 mm. or larger in size would be classified as colloids. Such a definition and classification would be strongly objected to by those who believe that only material of the finest size, such as .000005 mm., should be classed as colloids. But what will these people say when they realize that particles of .008 mm., or larger and having the same composition as those of .000005 mm., also exhibit energy phenomena the same as those of the smaller size, only of a slightly lower degree? Are we not justified then in classifying the larger particles under the same category as the finest? The present classification of soil colloids, which is based upon an arbitrary size of particles, is illogical. A true classification should have for its basis a natural transition point, such as is possessed in the heat of wetting phenomenon, which shows definitely that above a certain size of particles the phenomenon of heat of wetting is not at all manifested.

If the phenomenon of heat of wetting is adopted as a criterion for defining soil colloids, then we not only have what appears to be a logical and correct definition, but also, by the aid of such a definition, we can determine the colloidal content of soils, in less than 15 minutes as compared to more than 10 days by other definitions. This is accomplished by the rather remarkable relationship that has been discovered to exist between the percentage of colloids as determined by the heat of wetting method, and the percentage of material that stays in suspension in a liter of water at the end of fifteen minutes. The heat of wetting method used for determining the colloids is by means of the ratio:

$$\frac{\text{Heat of wetting of soils}}{\text{Heat of wetting of extracted colloids}} \times 100 = \text{per cent. colloids}$$

The extracted soil colloids are obtained by allowing the dispersed soil to stand 24 hours in a beaker 6 inches high and siphoning off the material that stayed in suspension. This method of extracting colloids seems to give the best representative sample of colloids in any soil.

It is firmly believed that the definition of soil colloids as proposed here is a natural and logical definition. It is simple, definite and comprehensive. It will have very few exceptions.

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SCIENTORS APPEAR IN THE SOUTHWEST

A number of years ago some prosperous real estate operators awakened to the fact that they were being hampered in their chosen field by a motley array of amateurs of a low order. Something needed to be done and that quickly if real estate were to continue as an active field in which men of culture and refinement could profitably perform. Accordingly a few of the more erudite among them formulated an imposing set of platitudinous rules which would not interfere with "business as usual," but which would permit disbarment of unwelcome competitors. These gentlemen also had the wisdom to coin a new word—"realtor"—with which to dignify their new profession. Both the code of ethics and the new name were approved enthusiastically and are still in use, to the great benefit of all members in good standing.

Having seen what wonders a code of ethics accomplished for the barratrous real estate agents of the southwest, the scientists in that region have taken heart, and with true western optimism have adopted unanimously a set of trade rules of their own that should go far toward making the profession respectable—at least in the eyes of the public.

Many of us here in the economical East had no idea that science was in such a bad way in the far West. Of course we had our suspicions, but that investigators were mulcting each other of ideas and jobs, when they were not doing dishonest work for miserably inadequate pay, had never occurred to us. But the rules speak for themselves and show only too clearly just how deplorable everything is. Those interested in scientific slumming will find the reforms duly and dully set forth in Science[1] all nicely numbered and ab'd for ready reference.

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[1] "A Code of Ethics for Scientific Men." Science, Vol. LXVI, No. 1700, pp. 103–104, July 29, 1927.