Dr. Richard P. Hall, Ph.D., University of California, and for the past three years at Rice Institute, Houston, Texas, to be assistant professor of micro-biology; Dr. F. L. Campbell, Harvard University, to be assistant professor of general physiology, and Mr. H. A. Charipper and Mr. F. J. Novotny to be graduate assistants in biology.

DR. RICHARD DOUGLAS PASSEY, lecturer in pathology in the Welsh National School of Medicine, Cardiff, has been elected to the new chair of experimental pathology in the University of Leeds and will also be director of cancer research. Dr. Bryan A. McSwiney, who was assistant professor of physiology at Trinity College, Dublin, and subsequently lecturer in experimental physiology at the University of Manchester, has been appointed to the chair of physiology, in succession to the late Professor W. F. Shanks.

DISCUSSION

GEOLOGIC AGE CALCULATIONS

IN view of the recent publication of two articles under the auspices of the Committee on the Extension of Geological Age by Atomic Disintegration in which the age of the Black Hills pitchblende is in one case referred to as fifteen hundred million years and in the other as sixteen hundred and sixty-seven hundred million years, it may be well to remark that the work of Davis[1] of course precedes that of Richards and Hall[2] and his estimate is the closer calculation, while the figure in the article by Richards and Hall is simply a round number to show the importance which this particular sample and the age determination thereof seem to have.

It may be well to say that even though no great exactitude can yet be claimed for the numerical figures for age, the relative ages are of great geological value and significance. In this case, for instance, a much greater age is indicated for the Precambrian age of the Black Hills than was previously supposed on what were realized to be very insufficient grounds.

The physicists are hardly yet agreed on the second figure of the numerical constants necessary to compute time from the lead: uranium ratio, and moreover it is by no means universally accepted that the rate of decay of radioactive atoms is uniform in time. Of the eight or more conceivable factors that might affect it, not all have been eliminated as unimportant within the ranges of conditions that occur in the outer rind of the earth.

It does not seem likely that any of them will affect the relative ages. If so it may probably be found out by comparing ages thus obtained with ages derived in other ways.

This has recently been done by A. Holmes.[3] In time we may hope to correlate the periodic and progressive, the hourglass and pendulum methods of estimating time.

In this work C. W. Davis has added important facts, for his paper includes not only an analysis of the Black Hills pitchblende, but that from Katanga, and of a mineral from Utah which may be a recent representative of the Swedish Kolm and the pre-Cambrian anthraxolites.

ALFRED C. LANE

AERIAL MUSIC IN YELLOWSTONE PARK

THE very interesting article in your issue of June 11 on a mysterious sound heard in Yellowstone Park brings to mind the fact that I heard sounds like that described many times in July, 1890, when, in the company of Professor Edwin Linton, then of Washington and Jefferson College, Pennsylvania, I was making a biological study of the waters of the park under the auspices of the U. S. Fish Commission. Linton and I heard these sounds with wonder and delight in different places and under different conditions—once I remember when we were riding on horseback through the woods, but never when they could be explained as due to anything in our immediate neighborhood.

I was so interested in this perplexing phenomenon that I made the following footnote reference to it in my report of our operations, made to the commissioner, Colonel Marshall McDonald, and published in the Bulletin of the U. S. Fish Commission for 1891. Referring to Shoshone Lake, I wrote:

> Here we first heard, while out on the lake in the bright still morning, the mysterious aerial sound for which this region is noted. It put me in mind of the vibrating clang of a harp lightly and rapidly touched high up above the tree tops, or the sound of many telegraph wires swinging regularly and rapidly in the wind, or, more rarely, of faintly-heard voices answering each other overhead. It begins softly in the remote distance, draws rapidly near with louder and louder throbs of sound, and dies away in the opposite distance; or it may seem to wander irregularly about, the whole passage lasting from a few seconds to half a minute or more. We heard it repeatedly and very distinctly here and at Yellowstone Lake, most frequently at the latter place. It is usually noticed on still, bright mornings not long after sunrise, and it is always louder at this time of day; but I heard it clearly, though faintly, once at noon when a stiff breeze was blowing. No scientific explanation of this really bewitching

[1] *Am. J. Science,* 1926, xi: 201.

[2] *Journal Am. Chem. Soc.,* 1926, xlviii: 704.

[3] *Geological Magazine,* Nov.–Dec., 1925, xii: 505–515, 529–544.

phenomenon has ever been published, although it has been several times referred to by travelers, who have ventured various crude guesses at its cause, varying from that commonest catch-all of the ignorant, "electricity," to the whistling of the wings of ducks and the noise of the "steamboat geyser." It seems to me to belong to the class of aerial echoes, but even on that supposition I can not account for the origin of the sound.

I am surprised that it has not been studied and understood before now and I hope that some of the many scientific men who doubtless visit the park every year may find in it an attractive problem for vacation study.

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VARIATIONS IN COLORS OF FLOWERS

I HAVE noticed for a good many years considerable variation in the color in the flowers of many of our native plants. The plum is now in full bloom. Within a few hundred feet of here there is a beautiful specimen along the roadside that the axe has spared so far. It has a decided shell-pink color, and is one of the finest native plum trees I have ever seen. A little further on, on the edge of the woods, is another plum tree with cream-colored flowers, and not very far from this tree one of pink color, almost the color of the peach blossom. I noticed recently near Green Bay, Wisconsin, also a plum tree of decided pink, but not as pronounced as the one mentioned above. Then we have those that are pure white and others with a light grey touch.

Our western crab apple, Pyrus Ioensis, usually shell pink, is very often found in full pink. There are some trees here of beautiful rose color, the finest rose I have ever seen amongst flowers.

In a ravine or blow-out in the Dune Country near Grand Branch, Michigan, the majority of flowering dogwood, Cornus Florida, are pink or rose, and I have been told that a few miles from there, there is another colony of the pink-flowering dogwood.

On a recent trip to Eastern Kentucky and Tennessee I did not notice a single pink-flowering dogwood except those in the gardens purchased from nurseries. Are these varieties in colors of the flowers due to natural hybridization or difference in soil? The plums I have mentioned all grew in clay, the pink dogwoods in sand, the dogwoods in Kentucky and Tennessee in clay or stony land. Whatever the cause, this natural variation gives the nurseryman a chance for a greater color variation for the gardens, and it seems to me this will in time partly settle the grievance amongst many of our people against the embargo. Perhaps the embargo is a good thing from more than one standpoint. It will give us a chance to look into native land and perhaps discover new beauty for our gardens, making them typical American.

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ZYGOPHYLLUM FABAGO IN THE UNITED STATES

IN SCIENCE for June 25, 1926, the Syrian bean caper, Zygophyllum Fabago, which had been found at Mesilla Park, New Mexico, January, 1925, was given as a plant new to the United States. Mr. J. C. Buchheister, of New York City, found a few plants of this Zygophyllum on Port Morris ballast grounds, June 10, 1900. He sent specimens to Dr. J. N. Rose, who said it had not been reported before from the United States. I collected it also at Port Morris on Long Island Sound, Bronx Borough, New York City, June 5th and July 8th, 1901. All these collections are in the herbarium at Cornell University. Mr. Norman Taylor in his Flora of the Vicinity of New York, says that, "Tribulus terrestris L. and Zygophyllum Fabago L. have both been collected near the metropolis. They are very doubtfully established." The ballast grounds at Port Morris must have been destroyed and built over many years ago.

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SCIENTIFIC BOOKS

Bacterial Infection with Special Reference to Dental Practice. By J. L. APPLETON. Published by Lea and Febiger, Philadelphia and New York, 1925.

THE dental profession and others interested in the microbiology of the mouth have waited long for some one to do what Professor Appleton has done. But "Bacterial Infection with Special Reference to Dental Practice" will prove valuable, not only to those who are especially interested in oral infections, but also to physicians, bacteriologists and immunologists. It is notable among recent new text-books in bacteriology for its original discussions and for its excellent up-to-date analysis of the literature.

The book is divided into three parts. Part I deals with bacteria, their morphology, physiology and classification. There is a separate chapter on the relation of bacterial growth to oxygen supply and another on chemical disinfectants, in both of which emphasis is given to the peculiar problems connected with oral hygiene. One outstanding feature is the compilation of data on limiting and optimal hydrogen-ion concentrations of various bacteria; another is the author's treatment of sterilization by heat. Both Migula's classification (modified from Chester) and Bergey's classification are summarized, but while the author is