pathology. Dr. Robertson has also become a member of the staff of the Mayo Clinic as head of the section on pathologic anatomy.

DR. CHARLES A. SHULL, now of the University of Kentucky, has been appointed in charge of plant physiology at the University of Chicago, to succeed Dr. Wm. Crocker, who has resigned to become the director of the Thompson Institute for Plant Research at Yonkers, N. Y.

DR. R. G. HOSKINS, associate in the Johns Hopkins University, has accepted the position of professor and head of the department of physiology in the Ohio State University.

AT George Washington University Dr. John T. Metcalf, assistant professor of psychology, has resigned to accept a call from the University of Vermont as associate professor of psychology, and Mr. F. A. Moss, development specialist at Camp Dix, N. J., has been appointed to fill the vacancy.

DR. WILLIAM H. COLE has been appointed to the chair of biology at Lake Forest College, to succeed Dr. W. C. Allee.

DR. H. M. DADOURIAN, associate professor of physics at Trinity College, is in charge of the physics department in the absence of Professor H. A. Perkins, who is in Europe on a year's leave of absence.

AT the University of Liverpool Dr. McLean Thompson, of the University of Glasgow, has been appointed to the Holbrook Gaskell chair of botany in succession to Professor R. J. Harvey-Gibson, who has resigned.

DISCUSSION AND CORRESPONDENCE

THE GEOGRAPHIC DISTRIBUTION OF HYBRIDS

TO THE EDITOR OF SCIENCE: In your issue of June 17, 1921, Professor Jeffrey, protesting against the assumption "by systematic botanists in this country that natural hybirds between species can only exist within the common range of the parent species," calls to his support cases cited by Kerner von Marilaun in the *Pflanzenleben* and elsewhere, saying:

> Perhaps the most interesting example in this connection is the hybrid *Nuphar intermedium* which is a cross between *Nuphar luteum* and *Nuphar pumilium*. . . . It is capable of extending its latitude northward of the range of both the parent species.

Nuphar intermedium is thus parallel with the blackberries which I have discussed elsewhere and, since Kerner is called into the discussion, it is well to quote his conclusion regarding *Nuphar intermedium*.[1]

> At the northern extremity of this large area of distribution *Nuphar intermedium* is more abundant than the species from which it is derived; indeed in many places it occurs in their absence, and in fact passes beyond the northern limits of their area of distribution. . . . *Nuphar intermedium* subsists independently there, multiplies without change of form, and has in fact established itself as a species.

On the same page Kerner discusses two other cases, *Salvia sylvestris* and *Rhododendron intermedium*. Where it occurs with *Salvia nemorosa* and *S. pratensis*, *S. sylvestris* is interpreted as a hybrid, but it has extended its range beyond either of the two former and Kerner tells us that

> Its fruits ripen in as large numbers as in the case of *S. nemorosa* or *S. pratensis*, and have been found by experiment to be fertile in a proportion of more than 60 per cent. *Salvia sylvestris* has therefore scattered itself . . . and manifests all the characteristics essential to our conception of a species.

Again, *Rhododendron intermedium*, when growing with *R. ferrugineum* and *R. hirsutum*, is considered a hybrid between them; but Kerner tells us that, in several areas *R. intermedium* dominates the vegetation of the mountain sides,

> develops fruits with fertile seeds, and transmits its characteristics unaltered to its descendants. . . . This form accords in every particular with the requirements demanded of a species, and is quite as much a systematic entity as either *R. ferrugineum* or *R. hirsutum*.

The cases of *Rubus*, which stimulated Professor Jeffrey's note, are exactly parallel with *Nuphar intermedium* (specially cited by Jef-

[1] I quote from Oliver's translation of "Pflanzenleben," Vol. 2, pp. 588–590.

frey) and others discussed by Kerner, and I greatly appreciate having my attention called anew to such an authoritative support of my thesis as is given by Kerner.

M. L. Fernald

Gray Herbarium,
Harvard University

ALBINISM IN THE BLACK BEAR

Several notes on albinism in wild animals and birds have been published in Science. An interesting reference to albinism in the bear is given in a rather rare work upon the adventures of John Tanner during his thirty years' residence among the Indians.[1] While living on the Assinneboin River he had the following experience:

> Shortly after this, I killed an old she bear, which was perfectly white. She had four cubs, one white, with red eyes, and red nails, like herself; one red [brown?], and two black. In size, and other respects she was the same as the common black bear, but she had nothing black about her except the skin of the lips. The fur of this kind is very fine, but not so highly valued by the traders as the red. The old one was very tame, and I killed her without difficulty; two of the young I shot in the hole, and two escaped into a tree. I had but just shot them, when there came along three men, attracted, probably, by the sound of my gun. As these men were very hungry, I took them home with me, fed them, and gave each of them a piece of meat to carry home.

An interesting feature of this case is the fact that one of the young also was albinistic. Had albinism been a recessive trait, the albinistic mother could hardly have produced albinistic young unless mated to an albinistic individual or to another individual carrying albinism recessive. This latter supposition indicates prior cross and persistence of albinism in the same locality.

It is interesting to note the high fertility of this albinistic individual.

Paul C. Standley

U. S. National Museum

[1] A narrative of the captivity and adventures of John Tanner (U. S. interpreter at the Saut de Ste. Marie), during thirty years residence among the Indians in the interior of North America, prepared for the press by Edwin James, New York, 1830, page 131.

BECHHOLD'S "CAPILLARY PHENOMENON" IN AGRICULTURE

H. Bechhold recently observed[1] the interesting capillary phenomenon that when a porous mass (such as a lump of earth or a block of plaster of Paris) is soaked in the solution of a salt and then dried, the salt collects almost quantitatively at or near the exterior surfaces. W. Kraus[2] has shown that this transfer of the salt is dependent upon evaporation at the exposed surfaces.

The above observations seem to me to give the scientific reason for the well-recognized value of cultivation or tilth in agriculture.

When the surface of the soil is stirred or broken up by a cultivator, hoe, or rake, besides killing weeds and "hilling up" the plants, a greater total surface is exposed to evaporation, and evaporation is therefore facilitated. The sub-surface water in rising, brings with it towards the roots, soluble substances which serve as plant food, though of course selective adsorption and differential diffusion effect some segregation. This capillary rise of water also accounts for the curious fact well known to farmers, that in dry weather cultivation will to a considerable extent furnish moisture to the growing crop.

Jerome Alexander

Ridgefield, Conn.,
June 21, 1921

[1] *Kolloid Zeitschrift*, 27, 229 (1920).

[2] *Kolloid Zeitschrift*, 28, 161 (1921).

QUOTATIONS

THE ROYAL INSTITUTION

In these days of grandiose state expenditure and trifling result, the history of the Royal Institution seems almost miraculous. It has occupied its present quarters in Albemarle-street since 1799, when it was founded by a few fellows of the Royal Society, of whom the American, Count Rumford, also founder of the Smithsonian Institution at Washington, provided the initial funds. Its purpose was severely practical—to "diffuse knowledge of useful mechanical improvements," to "teach the application of science to the useful purposes of life." But its wise governors soon found that teaching tends to be barren if it is divorced from research, and its laboratories, at