Alpha's weight at birth (2.26 kg) is the greatest thus far recorded in the colony. Her son's birth weight (2.14 kg) is the next in order. In motor development, Alf is approximating closely his mother's exceptionally rapid growth. Precocity is suggested also by Alpha's sexual development, since she first menstruated at 7 years, 11 months, and became pregnant at 8 years, 5 months. The infant Alf was delivered after a gestational period of approximately 235 days.

Neither Dwina[5] nor her daughter Alpha accepted and cared for her first-born infant. Instead, each of these primiparous mothers behaved as if surprised, bewildered and lacking suitable ready-to-hand patterns of behavior for the novel emergency. Neither consumed the afterbirth. By contrast, the multiparous or experienced chimpanzee mother usually eats at least a portion of the afterbirth, and she almost invariably treats the newborn infant as a familiar object, handling it freely, skillfully, and by proper treatment assuring its welfare. Only very exceptionally does she entirely ignore or refuse to take care of her baby.[6] The structurally determined maternal behavior of the primiparous chimpanzee is importantly supplemented by acquisitions resulting from individual reproductive experience and also by social tradition.

Baby Alf is an especially prized recruit to the experimental nursery group because the offspring of an extraordinarily gentle, intelligent and cooperative male and a docile female who, bred and reared in the Laboratories, throughout her life has been accustomed to handling and use as a subject of psychobiological experiments. In this mating a first step has been taken toward breeding the chimpanzee to specification as laboratory animal. Should the temperament of Alf resemble closely that of father, mother, or both, he will be peculiarly valuable as sire and as subject for experimental studies.

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THE RELATIONS OF SOILS AND SURFACE IN THE SOUTH CAROLINA PIEDMONT

SYSTEMATIC studies of the physiographic factors of soil erosion in the South Carolina Piedmont, carried on for the past three years by the Climatic and Physiographic Division of the Soil Conservation Service, have led to a considerable revision of current ideas concerning the development of soils and have cast new light on the recent geomorphic history of the region.[1]

[5] O. L. Tinklepaugh, *Anat. Rec.*, 53: 193, 1932.
[6] R. M. Yerkes, SCIENCE, 81: 542, 1935.
[1] A publication by H. A. Ireland, C. F. S. Sharpe and D. H. Eargle, "Principles of Gully Erosion in the Piedmont of South Carolina," U. S. Dept. Agr. Tech. Bul. No. 633, 143 pp., illus., January, 1939, summarized the processes of gully formation, considered the interrelation of causal factors and described the successive stages in gully development.

Exposed by gullies which have recently developed in the valley heads, dales and other natural drainageways, are deposits of organic material as much as twelve feet in thickness and buried under twenty feet or more of soil. Most of the deposits are rich in pollen and contain quantities of stem fragments, trunks, stumps and roots of trees as well as sedges and other herbaceous plants, usually well-preserved but compressed by the weight of the overlying deposits, although in some sites the material consists almost entirely of charcoal fragments.

A preliminary analysis of the pollen in some of the deposits by Dr. Stanley A. Cain, of the University of Tennessee, showed an abundance of fir and spruce, which indicates that the climate at the time the deposits were formed was considerably colder than the present-day climate. Further microbotanical study of the organic material is expected to show the relative abundance of the various plant species represented, their succession in the deposits, and hence, possibly, the age of the deposits and climatic conditions at the time they accumulated.

Most of the deposits examined are in Spartanburg County, South Carolina. A much wider distribution is indicated, however, by reports of similar deposits elsewhere in the Piedmont and in other physiographic provinces from Maryland to Alabama.

That the material which overlies the organic deposits has migrated down slope en masse as soil creep, earthflow and slumping, and perhaps to some extent as sheet wash, can not be questioned. Within the soil material itself are unmistakable evidences of migration. In many places the underlying saprolite with the original rock structure still well preserved is sharply truncated at the soil contact. In places, the soil contains unassorted masses of clay and sand mixed with boulders that can be traced up-slope to existing veins and dikes of resistant and only partially weathered rock, and near the base of the soil "stone lines" often occur. Horizontal laminations in partially assorted materials and lenses of sands and gravels in the lower soil horizons indicate soil movement in association with running water.

To supplement observations made in gully walls and to determine the areal distribution of the transported soil, more than 800 holes were bored at regular intervals through the entire soil profile from the surface to the underlying decayed rock. In one area studied in detail, typical of much of the South Carolina Piedmont, about 50 per cent. of the surface is underlain by soil materials definitely proved to have been transported.

Hitherto, most Piedmont soils were thought to have developed from material of residual origin. The discovery of organic material underlying many of the soils, including Cecil, Appling, Colfax and Worsham,

and the existence within the soils themselves of the evidence of migration in such widely differing soils as Durham, Iredell, Georgeville, Lockhart, Davidson and Wilkes demonstrate that these soils are not everywhere residual, and suggest that some of the distinguishing characteristics of the individual soil types may be due to migration. Similarly, variations within individual soil types may be attributed to the partial assortment of materials during soil migration.

Furthermore, the tremendous thickening of the soil mantle above the organic matter on the concave slopes indicates that local relief has been diminished and surface landforms softened. The upland surface has been reduced in elevation, the valleys have been aggraded and the connecting slopes have been reduced in grade.

In the Piedmont, at least, lateral migration of soils and soil materials ranks with vertical movement of material within the soil profile as an agent of soil genesis and as a factor in determining soil characteristics and the distribution of soil types. The physiographic processes of mass-movement which are important in soil formation are also responsible for the minor landforms of the region. Thus, it would seem desirable to emphasize physiography and landforms in the mapping and interpretation of soil types; and conversely, to consider the influence of soil in the development of surface configuration.

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BORON DEFICIENCIES IN CONNECTICUT

IN the July 14, 1939, number of SCIENCE, W. L. Powers, of Oregon, reported striking results in the control of alfalfa "yellows" by an application of 30 pounds per acre of boric acid. Yields during dry weather were trebled and the quality of the hay greatly improved by the use of boron. Beneficial effects were noted also on other crops.

For several years, the Storrs (Connecticut) Agricultural Experiment Station has been exploring the possible needs of field crops for minor elements, including boron. No responses were obtained until, during the dry summer of 1939, the top leaves of alfalfa yellowed and buds failed to develop into blossoms on all the experimental plots that had not received borax. This was true of a variety of treatments, including stable manure. Where borax at 20 pounds per acre (2.3 pounds or 1.15 p.p.m. of boron) had been added the previous August, these symptoms of boron deficiency were almost entirely absent. The second cutting yields were increased 16 per cent. by the borax, and chemical analyses of the alfalfa gave the following data: Boron in dry matter (p.p.m.): with borax, leaves 62, stems 22; without borax, leaves 21, stems 16.

These results occurred on one of the best agricultural soils in Connecticut. Alfalfa "yellows" was also observed on several farms in August, 1939. Reports indicate a wide-spread occurrence of "internal cork" of apples (a symptom of boron deficiency) in Connecticut the past season. Thus, it appears likely that under certain soil and weather conditions, other crops might be benefited by additions of boron.

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RECEIPT OF EUROPEAN JOURNALS DURING THE WAR

SHORTLY after the war began in Europe the American Documentation Institute, with the approval of the Division of Cultural Relations of the Department of State, circulated notices, which were published in various scientific and scholarly journals, stating that it would attempt to secure information about whether or not scientific journals were being delayed in delivery in this country due to war conditions. A considerable number of communications have been received and handled in response to these notices. In almost all cases it is evident that non-receipt of journals by libraries and other subscribers is due to action on the part of agents in Germany holding journals for transmittal when, in their opinion, shipment to this country will be safer. On the other hand, journals that have been ordered direct from and sent directly by the publishers have in practically all cases been arriving safely and relatively on time.

The non-receipt of journals that are held by agents does present a serious problem. This situation is well expressed in a letter from an ADI member, Dr. E. J. Crane, editor of *Chemical Abstracts,* Columbus, Ohio (Feb. 27, 1940):

> As you no doubt know, some libraries and individuals are getting German and other European periodicals regularly now, or almost regularly, whereas others are not getting any copies. The difference seems to be that those who are getting copies deal directly with the publishers or obtain their copies through agents who are attempting to make deliveries. Those who are not getting their copies deal with agents who are accumulating copies overseas with the idea of holding these until deliveries may be made more safely, which probably means until the war is over. We deal directly with German and other publishers and we are getting our journals regularly for the most part. We do not obtain all of the journals which are abstracted, however, and many of our abstractors are dependent on libraries whose periodicals are not being delivered.
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> No doubt our problem is merely one of many encountered by scientists under these conditions. The lack of complete files of current journals is a serious handicap to research in this country, I believe.
>
> I wonder if anything can be done to persuade librarians