read that "with only one exception, each group of islands has its own characteristic species which occur nowhere else.

"The same correlation between geographical and specific discontinuity is displayed by the species of the different islands of one and the same group for each member possesses distinct species not found in the others" (p. 11); and that the various varieties are confined within rather easily definable geographic limits.

It would seem that the isolation factor had been so taken for granted as to be overlooked. It has certainly not been the only, perhaps not a necessary, factor. For instance (p. 309), we find mention of "two absolutely independent varieties [of *P. otaheitana*], *rubescens* and *affinis*, which have almost identical geographical limits; yet they stand in the sharpest possible contrast to one another." A very intensive study of these two varieties would, in the reviewer's opinion, almost surely show some slight difference of habit, of adaptation to the same environment, otherwise being too far separate to interbreed freely, one of them should have crowded the other out.

Perhaps, the conclusion of the widest interest, if not of the greatest importance, is found in the following statement. "The evidence tends to prove that the dominant geological process in South Pacific regions has been one of subsidence, which has progressively isolated various mountain ranges previously connected, so that they have become separate island-masses, which, in their turn, have been subsequently converted into the disconnected islands of the several groups."

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SPECIAL ARTICLES

FURTHER EVIDENCE RELATIVE TO THE VARIETAL RESISTANCE OF PEANUTS TO SCLEROTIUM ROLFSII

During 1916 data were collected[1] which indicated that there is a marked difference in the susceptibility of peanut varieties to the attacks of *Sclerotium Rolfsii*.

The soil in the plots where the peanut rotation experiment is being conducted has been proven to be thoroughly infested with *Sclerotium Rolfsii*, and the Valencia variety has shown great susceptibility to the attacks of this fungus; therefore, at the writer's suggestion, the use of the Valencia variety for the rotation experiment was discontinued, and commercial seed of the Virginia Bunch variety was substituted for use in 1917. Plots one and three, each about one third of an acre in size, were planted for the 1917 test. Plot one had grown peanuts continuously since 1910, while plot three had grown peanuts in 1911 and 1914.

It was observed that some of the supposed Virginia Bunch plants had a procumbent habit of growth, and when these plants began to blossom the suspicion that they were of the Virginia Runner variety was confirmed. As these two varieties are supposed to be merely selections of erect and procumbent types of plants from the same original variety, the presence of the Virginia Runner plants in the 1917 plantings might be due either to a slight mixture of the commercial seed, or a failure of the Virginia Bunch variety to be in all cases well fixed.

The two plots were under observation until the crop was harvested, November 9, 1917. During this time the writer found one Virginia Bunch plant in each plot which had wilted, and examination disclosed the coarse, white mycelium of *Scelerotium Rolfsii* about the base of the stems, thus indicating that the wilting was due to this fungus, as had been proven in many cases in 1916.

The fact that none of the Virginia Runner plants wilted confirms the data collected in 1916 to the effect that this variety is practically immune to the attacks of *Sclerotium Rolfsii*.

The resistance of the Virginia Bunch variety in 1917 was much greater than in 1916, as shown by the fact that in 1916, out of a

[1] McClintock, J. A., "Peanut-wilt caused by *Sclerotium Rolfsii*," *Journal of Agricultural Research*, Vol. VIII., No. 12, pp. 441–448, March 19, 1917.

total of one hundred and thirty-two plants, six wilted; while in 1917, out of a total of more than seven thousand plants, on the same land only two wilted.

These data will possibly be of some value, especially to the Southern States, where the peanut promises to become a more important crop in the boll-weevil infested districts, and where *Sclerotium Rolfsii* has already become established as a serious parasite of numerous crops.

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THE BOSTON MEETING OF THE AMERICAN CHEMICAL SOCIETY. VII

Potash recovery from greensand and feldspar and by-products therefrom: H. W. CHARLTON. The process, stated briefly, consists in digesting greensand, feldspar, etc., with the requisite amount of lime and water at elevated temperatures and pressures. The alkali is brought into solution and recovered as a hydrate, and the solid material, which has undergone both chemical and physical change, is filtered off and employed as a binding material in the manufacture of brick, tile, artificial stone and other steam-hardened products. Possessing, as it does, self-cementing properties in addition to those induced by the steam-hardening treatment, it turns out materials which for strength and resistance to climatic conditions are superior to previously known steam-hardened products. Although the reaction may be applied to alkali-carrying silicates in general, it is believed that greensand is economically the most suitable, occurring, as it does, in unlimited quantities, obtainable without blasting or crushing and lying in stratified layers overlaid with a high silica sand. This is particularly fortunate as the overburden may be used with the resulting binding material in making brick, and the cost of mining is materially lessened. In the proportioning of the digestion mixture when using feldspar it is necessary to employ an equal weight or more of lime and eight times its weight of water, and to digest at pressures of from 200–250 pounds for from two to four hours. If the amount of water is reduced below this figure, the alumina in the feldspar appears to cause a reverting action. Fortunately this is not the case with greensand where the alumina is normally replaced by iron, and a double concentration can be employed. If lime is added in excess, there are no bad effects, as it is changed into a plastic sub-hydrate which in itself is a powerful binding material. It is undoubtedly true that the cementing material from a feldspar digestion is superior to that from greensand, but the cementitious properties of both are much superior to those now used in the production of steam-hardened products. Feldspar residue could be used in the manufacture of excellent face brick, whereas greensand residue would probably be better suited for the production of court or common brick, roofing, tile, drain tile, sewer pipe, fire-proofing, etc. Probably the most serious problem in the recovery of potash from feldspar is the separation of the soda. When employing greensand the almost complete absence of soda makes it possible to obtain a very pure caustic with one evaporation. Another objection to feldspar treatment is the almost invariable presence of alkali aluminates in the caustic liquor. It is found that there is not a trace in the greensand liquors. Although caustic alkali or a hydrated carbonate are the usual products of the recovery of the potash, other compounds may be easily formed as an end product. The same is true of the cementing material. Its use is not confined to the manufacture of brick. Other products such as tile, artificial stone, insulating material or stucco, are easily produced, and the choice depends on the market.

Some problems in the metallography of steel: H. M. BOYLSTON. (1) Banded structures in steel; their existence, cause and effect. Banded structure in nickel steel, in high manganese rifle-barrel steel, in shell forgings. Prevention and cure. (2) The hardening of high-speed steel and its relation to composition and performance. The Bellis microscopic test for determining best hardening temperature. Effect of carbon content. Effect of special elements. Streaky carbides. (3) The annealing of carbon steel castings. Results desired. Old methods. Present practise.

The effect of annealing on the electrical resistance of hardened carbon steels: I. P. PARKHURST. The object of the investigation was to anneal quenched steels over definite periods of time at constant temperatures. Five steels were determine the effect on electrical resistance of used varying in carbon content from 0.08 to 0.45 per cent. The temperatures used were 125° C., 175° C. and 250° C. The total periods of annealing varied from 90 to 190 hours. Results were plotted as time against resistance. Micro-photographs were made of the specimens during the