E. L. Ryerson, $50,000 for general endowment from J. J. Dau, of Chicago, $25,000 without limitation as to its use from Edward L. Swift and a number of smaller gifts.

A TOTAL of $96,245 has been received by New York University through gifts and bequests in the last two months. These include the following: From the estate of Margaret Olivia Sage, the university received $45,000; the Nicholas Foundation, Inc., made an additional gift of $23,600 for the William H. Nichols chemistry building fund, and anonymous, through Professor George David Stewart, $10,000 to be used for instruction in surgery in the medical college.

IN recognition of his investigations and experiments on plants, John H. Schaffner, for many years professor of botany and formerly head of the department of botany of the Ohio State University, has been promoted to the rank of research professor of botany.

PROFESSOR GEORGE W. GORRELL has been made head of the department of mathematics at the University of Denver.

DR. BRET RATNER has been appointed clinical professor of pediatrics and lecturer in immunology at New York University and Bellevue Hospital Medical College.

DR. CECIL V. KING, formerly instructor at Columbia University, has joined the staff at Washington Square College of New York University as assistant professor of chemistry.

PROFESSOR WATSON BARTEMUS SELVAGE has been appointed associate professor of education and psychology in Washington and Lee University.

G. ALLEN MAIL has been appointed assistant entomologist at Montana State College, University of Montana, Bozeman, for one year beginning on April 1 and will assist in teaching and conducting mosquito studies in northern Montana.

DR. R. K. BUTCHART, lecturer in mathematics in the University of St. Andrews (University College, Dundee), has been appointed to the chair of mathematics at Raffles College, Singapore.

DR. CHAMPY has been nominated professor of histology in the Paris faculty of medicine in succession to the late Professor Prenant.

DISCUSSION AND CORRESPONDENCE

SCIENCE AND SECRETARIES

THE proposed transfer of the geodetic work of the U. S. Coast and Geodetic Survey to the U. S. Geological Survey, for which provision is made in the bills now before both houses of Congress as noted in SCIENCE for January 13 and as discussed by Dr. Geo. Otis Smith in the number for January 20, involves a principle quite apart from the merits of the proposed administrative change. It is one which should interest all scientists who recognize the very important rôle played by the bureaus of the government in promoting or retarding scientific research.

The question is who should pass upon the conditions affecting the efficiency of research. Are the administrative secretaries in charge of departments competent to do so? It would not be difficult to cite evidence that they commonly are not. Many of them demonstrate abilities of a high order as administrators, but they themselves would disclaim the omniscience requisite to understand the workings of all the scientific bureaus.

The advisers of our secretaries are the heads of the individual bureaus and they naturally have their individual points of view. They are specialists, whose purpose is intensified and narrowed by the responsibility for the development of the work intrusted to each of them separately. They are worthy of all respect, but they can not be credited with a disinterested judgment regarding the relative abilities of their own organization or another's to carry out a particular scientific task.

In any proposal for reorganization of administrative relations two bureaus are commonly involved and often two departments, as in the present case. The two secretaries may agree, but the bureau chiefs may probably differ, as the heads of the respective surveys actually do. It is evident that there is need of independent, unbiased, adequately informed opinion as to the effects of any such transfer upon the efficiency of the research in progress.

The National Academy of Science is by law the adviser of the Government in scientific quesions. It comprises in its membership specialists in all branches of science. Among them are men whose judgment would command the respect of their colleagues at home and abroad and also that of their fellow countrymen who take an intelligent interest in the service our great government bureaus render the people.

Scientists may reasonably claim that research shall be organized according to the recommendations of those most competent to judge its needs and that changes in administration of our government bureaus, where they affect scientific activities shall be referred to the National Academy of Science for an expression of opinion by competent judges before they are made on administrative grounds.

At the Cleveland meeting of the Geological Society of America resolutions were passed recommending that the proposed transfer of the geodetic and seismo-

logic work be referred to the National Academy. Should that be done, as we may hope it will be, a broader proposition will be presented than that which has so far been discussed. The administrative question relates to the economy and convenience of executing primary triangulation in one or another connection. The scientific problems involve the ultimate objects of the triangulation. Will the astronomical and geophysical researches in geodesy be promoted by the change? Will the mathematical-physical investigations pertinent to seismology be advanced? Those are the real questions. And we should not forget that the reputation for work of superior accuracy and penetration which the United States has won during half a century of geodetic work presents a standard not easy to maintain in reorganization; nor that the seismologic studies have as their ultimate purpose the task of educating the American people to a better understanding of earthquakes and to better methods of protecting themselves from disasters such as we have hitherto not escaped. The questions are much broader and of more far reaching significance than the estimated attainment of economy of administration.

BAILEY WILLIS

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RE SPECIATION WITHOUT CLIMATIC CHANGE OR GEOGRAPHIC ISOLATION

IT is an hypothesis rather generally held, and favored by a certain amount of evidence that speciation is largely dependent on changes of environment. A species moves from its center of abundance into diverse peripheral environments which change it somewhat both in structure and habits. Races are formed which are potential species, and become species by chance or other isolation. A study of races shows that such a process is in fact going forward.

There is per contrast little evidence of speciation in a single uniform circumscribed geographic locality. Nevertheless, certain considerations point to a probability that speciation does take place without environmental change and within the confines of a given locality.

We may conceive that a successful species becomes abundant and quickly reaches its saturation point within its range. Within that range there is, however, one outlet whereby it may still further increase, namely, by specializing in two directions. In due time groups of individuals may arise with such divergent habit tendencies. Slowly to be sure, and in the face of cross-breeding, they would diverge ecologically or physiologically up to that point where sufficient fundamental difference is attained to itself furnish a certain amount of isolation. Then the split might come so quickly, the intergradation period have so short a duration in time as to be seldom noticed. There is evidence, mostly circumstantial to be sure, that such speciation does occur and is of considerable importance. It may well be of primary evolutionary importance, for it is not the peculiar isolated environments most favorable for the differentiation of races which give rise to the successful types which spread and become dominant. It is rather the large, uniform, favorable areas which evolve a strong fauna, hard for weaker forms to penetrate, but whence dominant species spread and radiate to the four corners of the earth. The strong fauna of any given moment has probably corresponded to a distribution center of passing time, and it is from such distribution centers that the animals of succeeding epochs seem to be derived. Correlation of the zoogeographical "fauna" with the paleontological "distribution center" will, in the writer's opinion, clarify the path of both sciences.

It will illustrate the above hypothesis of speciation to cite a few instances where it may have pertained. The pilot-fish (*Naucrates*) seems to be a specialized derivative of the genus *Seriola*. Probably all species of this genus as young fishes have the habit, to a greater or less degree of lurking under some "hover," such as a bit of drift-wood, and of following larger fishes. The pilot-fish does so throughout life, and its generic peculiarities are doubtless correlated with this difference. Furthermore it is logical to suppose that habit and correlated physiological differences in this case preceded structural adaptation, and one may easily conceive the initial habit split to have occurred within some such species as the banded rudderfish, *Seriola zonata*.

Take another case, the well-watered Alleghany mountain region is a center of abundance and variety for salamanders of the genus *Desmognathus*. Various more or less separate or intergrading forms occur here living more or less in and out of the water, and with them is found the more exclusively aquatic derivative genus *Leurognathus* (Dunn, 1926, Salamanders of the family Plethodontidae). It certainly seems as if *Leurognathus* had split off as an ecological adaptation in this optimum region of *Desmognathus* abundance, descendent of those *Desmognathus* with the greatest aquatic tendency.

Among birds, the writer has earlier suggested (1919, *Auk*, p. 225–228) that the numerous related species of Warblers of the genus *Dendroica*, nesting together in the Canadian forest, can be more rationally explained as divergence in one locality to take advantage of special habit niches, than as each the result of past geographic isolation, implying later gathering