unique in its way as are the zigzag ridges of the Pennsylvania Alleghenies. Its development, on the more-than-one-cycle scheme, appears to have been as follows: The great body of complicated crystalline rocks was effectively baseleveled in ancient times, and covered unconformably with early paleozoic strata. The compound mass was afterwards broken by numerous faults, which divided it into many irregular, (nearly) vertical prisms; and the prisms were irregularly jostled and tilted. At that time the surface must have been characterized by many displaced blocks, topped with paleozoic strata and separated by fault scarps. Then the whole district was again baseleveled; this being indicated by the general accordance of upland heights to-day, irrespective of faults. On the peneplain thus produced, the paleozoic strata would remain only where they lay below baselevel. A broad upwarping introduced a new cycle, which has now advanced (glacial erosion included) so far as to have almost entirely consumed the previously inaccessible remnant-covers of paleozoic strata, thus developing fault-line scarps in good number; while the fault lines through the crystalline uplands are now marked by narrow fault-line valleys.

This case is similar in some respects to that of the Hurricane ledge in Arizona, next north of the Colorado canyon. When first described by Dutton (Monogr. II., U. S. Geol. Surv.), this strong escarpment was interpreted as marking a recent fault, and its height was taken as a measure of the fault. Reasons have since been given for believing that the fault is not recent (where the N-S fault line crosses certain erosional E-W escarpments, the corresponding members of the latter are out of line by several miles, and this departure from alignment must represent the excess of escarpment retreat in the heaved block over that in the thrown block); that the original displacement was essentially obliterated by baseleveling (a level, unbroken lava flow crosses the fault line at one point, passing evenly from strong to weak rocks); and that the existing scarp is a fault-line scarp produced by the action of revived erosion on the weaker strata along one side of the fault line. W. M. D.

STAFF OF THE ROCKEFELLER INSTITUTE

THE Rockefeller Institute for Medical Research has adopted as titles for its staff member, associate member, associate, assistant, fellow and scholar of the Rockefeller Institute, and has made the following list of appointments:

Member of the Institute and Director of the Laboratories—Simon Flexner, pathology.

Member of the Institute—S. J. Meltzer, physiology and pharmacology; E. L. Opie, pathology; P. A. Levene, biological chemistry.

Assistants of the Institute—Hideyo Noguchi, pathology; John Auer, physiology; Alexis Carrel, experimental surgery; J. W. Jobling, pathology; Nellie E. Goldthwaite, chemistry.

Fellows of the Institute.—C. M. A. Stine, biological chemistry; Donald Van Slyke, biological chemistry; Martha Wollstein, pathology; Maud L. Menten, pathology; Mabel P. Fitzgerald, bacteriology; Don R. Joseph, physiology; Benjamin T. Terry, protozoology; Thomas W. Clarke, pathology.

Scholar of the Institute—Bertha I. Barker, pathology.

Grants to aid special researches have been made to the following: Robert M. Brown, New York; C. H. Bunting, Charlottesville, Va.; Katherine Collins, New York; Cyrus W. Field, New York; N. B. Foster, New York; Joel Goldthwaite, Boston; Holmes C. Jackson, Albany; Arthur I. Kendall, New York; Waldemar Koch, Chicago; W. G. MacCallum, Baltimore; Wilfred H. Manwaring, Bloomington, Ind.; J. W. D. Maury, New York; F. G. Novy, Ann Arbor; W. Ophüls, San Francisco; Richard M. Pearce, Albany; H. T. Ricketts, Chicago; Hermann W. Schulte, New York; Charles E. Simon, Baltimore; Aldred S. Warthin, Ann Arbor; Francis C. Wood, New York.

SCIENTIFIC NOTES AND NEWS

SIR JOSEPH D. HOOKER, who celebrated his ninetieth birthday on June 30, has been made a member of the Order of Merit.