Were it not that the ganglionic nature of the neuro-adrenal junction prevents excitation of the adrenal by its own secretion,[9] adrenaline secretion once started might be self-perpetuating. Instead the nature of the junction introduces the possibility of self-limitation of adrenal discharge by the ganglionic inhibitory action of adrenaline. Work in progress is expected to yield data that will further test this view.

AMEDEO S. MARRAZZI

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CHLORAZOL FAST PINK BKS

IN the April 14 issue of SCIENCE there is a communication from Dr. Walter Modell drawing attention to the valuable characteristics of the azo dye known as Chlorazol Fast Pink BKS, Color Index No. 353, as an anti-coagulant.

This dye has been prepared in a pure form under my direction for quite a number of years in order to save the biological laboratory the necessity of purification, and has been supplied free of cost, in small quantities, to institutions of learning. Dr. Charles E. King, of Vanderbilt University, states that the material, as furnished, is so little toxic that he is able to give a full dose in one injection, although the slight shock, when this is done, can be avoided by dividing the amount and giving it in three portions.

This communication is made to inform those interested that, if they are in need of very small quantities, they can obtain these without the necessity of doing their own purification.

R. E. ROSE

E. I. DU PONT DE NEMOURS AND COMPANY,
WILMINGTON, DEL.

"STARS" IN AMERICAN MEN OF SCIENCE

IN the "Distribution of the Younger Starred Scientists" by Professor S. S. Visher, which recently appeared in SCIENCE,[1] occurs the following statement: "Universities which had fewer starred men on their faculty in 1938 than in 1906 include Columbia, 60 in 1906, 39½ in 1938; Cornell 33, 25½; Dartmouth 6, 1; New York 9, 7; Clark 7, 1; Indiana 6, 3; Missouri 9, 1; Wesleyan 7, 4."

The casual reader would infer that these faculties had deteriorated or at least lost many of their most talented or creatively industrious members. A little further examination, however, reveals that the article contains no data as to actual numbers in 1938. In lieu of actual numbers for each institution, the article takes the total numbers of new names starred in 1921–1937 (third to sixth editions), mistakes them for totals on these faculties in 1938, and, comparing them with totals for 1906, finds in this particular group of institutions "fewer starred men" than in 1906.

As a simple and modest example, Dartmouth (which still prides itself on being a "liberal college" with no university aspirations) had in 1906 six starred members and actually six (rather than one as stated) in 1938. If an interested person should take the trouble to look up in the recent edition of American Men of Science the 1938 numbers for other institutions with diminishing returns, some of them, too, very likely would be removed from the black list.

A similar confusion appears in the two preceding paragraphs. The number of starred men included in the 1906 selection of 1,000 is compared with the total for each institution of selections in 1921, 1927, 1932 and 1937 (*ca.*, another 1,000). A list of institutions is given in which these total subsequent selections approximately equal the original selection for that institution: *e.g.*, Harvard 66 in 1906, compared with 69 (inadvertently identified with the unascertained number on the faculty in 1938).

Another list of institutions which have "gained notably" includes California, 27 in 1906 compared with 39, which is wrongly assumed to be the unascertained number on the faculty in 1938, but really is the total of the four selections made during the past 18 years.

If all the men and women starred in 1906 had died, or somehow become completely annihilated, before 1938, Professor Visher's statistical interpretation of the selections made during the last two decades would have been approximately correct.

J. H. G.

DARTMOUTH COLLEGE

THE portion of an article on this subject reprinted in the June 23 issue (89: 583–585) contains two inadequate statements. Although the study is concerned with the younger starred scientists, those starred in 1921–1937, and refers to the older group (those starred in 1903 or 1909) only for sake of comparison, a statement on the 1938 distribution of starred scientists does not make this limitation clear. What was meant was that certain institutions had in 1938 or earlier of the 1,101 scientists starred in 1921–1937 the numbers specified, which totals were greater or less than those institutions had of the 1,000 starred in 1903. A very few of these older men have not yet retired, whereas the quoted statements imply that they have all died or retired.

STEPHEN S. VISHER

THE PACIFIC ENTOMOLOGICAL SURVEY

A NOTE under this heading in SCIENCE for June 16, 1939, over several signatures from Hawaii, has been

[8] C. W. Darrow and E. Gellhorn, *Proc. Amer. Jour. Physiol.*, page 58, April, 1939.

[9] P. Trendelenburg, *Ergebn. der Physiologie*, 21: 549, 1923.

[1] SCIENCE, 89: 583–585, June 23, 1939, reprinted (abridged) from *American Journal of Science*, 237 (1): 48–65, January, 1939.

brought to my notice by B. Ewart White, of 36 Bedford Row, London, W.C.1., in a letter to me dated July 12.

Exception is taken to the statement that E. P. Mumford, who has been completing the Marquesan work under my general supervision, has "no control over the collections made in the Marquesas" by himself and his assistants "nor over the publications resulting from their study," and that "All correspondence pertinent to the original survey" (which Mr. Mumford had been invited to direct, and towards the completion of which through the depression he and others outside of Hawaii had contributed financially) "should be addressed to Bernice P. Bishop Museum, Honolulu."

The facts are that the director of that museum had himself stated in official letters to Mr. White, "I understand perfectly that Mr. Mumford is responsible for checking the remaining taxonomic papers on the material collected by him and his assistants in the Marquesas and Society Islands." Mr. White continues: "the balance of funds on hand to the credit of the Pacific Entomological Survey in Hawaii in 1936 was transferred to me by order of the benefactors in Hawaii and elsewhere, and . . . I, as representative of these and subsequent subscribers, have here in safe keeping the original authorizations from Honolulu referring to the continued use of Pacific Entomological Survey Notes, correspondence, etc., and to the *continuation* of the 'work under the name of the Pacific Entomological Survey.'"

The statement in SCIENCE that the work now being carried on by Mr. Mumford under the auspices of Oxford University is a "new 'Survey' . . . distinct from the survey organized in Hawaii," is misleading. The authors of that statement make no reference to the account in the leading English scientific periodical *'Nature,'* January 29, 1938, of the means by which Mr. Mumford's work was continued at Oxford.

The reference to registration of a Pacific Entomological Survey "with headquarters at Oxford" is equally misleading. In 1936 a custodian of the above-mentioned funds was necessary, and Mr. B. Ewart White consented to serve as a trustee. The name Pacific Entomological Survey was used for the time being to maintain the continuity of the work, as stated above, but the name Pacific Entomological Survey has not been, and will not be, employed in connection with the present phase of the work associated officially with Oxford.

It is to be deplored that attempts to interfere with the progress of this work should be made, even under a misapprehension. The only object in view should be to obtain, and make known, facts which will help in elucidating the problems of the Pacific Islands. It is appreciated by us that the Marquesan collections and certain other material now under the charge of Mr. Mumford will be deposited in the Bernice P. Bishop Museum, when the final results have been obtained. To further this end the Hope Department of Entomology of the University of Oxford, by means of grants from the University for five years from October, 1938, from the Royal Society and the British Association for the Advancement of Science and from benefactors through the trustee, Mr. B. Ewart White, is obtaining from sundry little known islands in the Pacific, new collections which it is hoped will aid in elucidating problems revealed by the Marquesan work that Mr. Mumford has been completing at Oxford.

G. D. HALE CARPENTER,
Hope Professor of Zoology (Entomology) in the University of Oxford

JULY, 1939

SCIENTIFIC BOOKS

ELEMENTARY MATRICES

Elementary Matrices and Some Applications to Dynamics and Differential Equations. By R. A. FRAZER, W. J. DUNCAN and A. R. COLLAR. xvi + 416 pp., 8vo. Cambridge: at the University Press. New York: The Macmillan Company.

TWO of the authors of this beautifully printed volume are members of the Aerodynamics Department of the National Physical Laboratory of England, and the third is professor of aeronautics at Hull.

The book appears to have three main objectives. The first is the development of certain phases of elementary matric theory, the second is the practical solution of differential equations by means of the matric calculus, and the third is the application of these methods to mechanics, in particular to the dynamics of the airplane.

Clearly the book is intended primarily for students of applied mathematics who are not very familiar with modern algebra. Consequently, the elementary treatise on matrices which occupies the first 155 pages is quite lengthy and detailed. The usual theorems are given on quadratic and bilinear forms, latent (characteristic) roots, elementary operations and the elementary divisor theory. Infinite series of matrices are also treated and matrices of differential operators.

Throughout the text, computational methods are featured and many numerical problems are worked out in detail. Much attention is given to rapid methods of calculation by means of machines. For example, more than twenty pages are devoted to methods for calculating the reciprocal of a matrix, and one specimen calculation of the reciprocal of a sixth order matrix is given with some elements computed to the ninth deci-