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THE hundredth anniversary of the Division of Science and of the State Museum at Albany will be observed on October 15 at the annual convocation of the University of the State of New York. Scientific men and interpreters of the relation of science to the state and to society will take part in the two sessions to be held in the State Education Building. The speakers at the first session will be Dr. John C. Merriam, president of the Carnegie Institution of Washington; Dr. C. Stuart Gager, director of the Brooklyn Botanic Garden, and Lewis Mumford, writer, of New York City. Dr. Arthur E. Morgan, chairman of the Tennessee Valley Authority, and Waldemar B. Kaempffert, science editor of *The New York Times*, will speak at the evening session. Dr. Morgan's subject will be "The Relation of Electricity to Social Policy." Mr. Kaempffert will discuss "Science and Democracy."

SECTION I (Psychology) of the American Association for the Advancement of Science will meet in Indianapolis from Monday, December 27, to Wednesday, December 29. In addition to the usual program of contributed papers, there will be on December 28 a symposium on "The Endocrines as Related to Behavior," under the chairmanship of Dr. Calvin P. Stone, of Stanford University. All fellows and members of the section who wish to read papers should submit abstracts in duplicate (not more than 300 words in length) of the papers which they wish to present, giving the time required for presentation up to a limit of 15 minutes. Abstracts should reach the Section Secretary, Dr. Leonard Carmichael, Department of Psychology, University of Rochester, Rochester, New York, not later than November 6.

THE seventeenth annual meeting of the Highway Research Board of the National Research Council will be held in Washington, D. C., from Tuesday, November 30, to Friday, December 3. Papers and committee reports relating to highway finance, economics, design, materials and construction, maintenance, soils, roadside development and safety will be presented. This year the formal meeting of the board will be interspersed with open departmental meetings for informal discussion.

ACCORDING to *The Museum News*, the South African Museums Association has held its first annual general meeting at Kingwilliamstown, Cape Province, with seventeen representatives of institutional members present. The retiring president, C. J. Swiestra, reported that twenty-four of the museums of South Africa and Rhodesia had joined the association during the year since the inaugural meeting, leaving only a very few not yet affiliated with the association. For the year 1937-38, E. L. Gill, South African Museum, Capetown, was elected president; E. C. Chubb, Durban Museum and Art Gallery, was reelected secretary-treasurer, and G. Arnold, Rhodesian Museum, Bulawayo, John Hewitt, Albany Museum, Grahamstown, G. C. Shortridge, Kaffrarian Museum, Williamstown, and C. J. Swiestra, Transvaal Museum, Pretoria, councilors. The association voted to hold the next meeting immediately following Easter, 1938, at Durban in the Province of Natal.

By the will of Miss Amelia Marburg, who died on September 9, the Johns Hopkins University and the Johns Hopkins Hospital each receive the sum of \$50,000.

THE *Journal* of the American Medical Association reports that a trust fund of a million dollars has been given by Miss Emily Renziehausen to the Children's Hospital for "perpetual research in the causes, treatment and cure of diabetes in the youth of the Pittsburgh area." The first income of the fund will be used to build an addition to the hospital to be known as the Renziehausen Memorial Ward and Clinic. In addition Miss Renziehausen has given an eleven-acre farm as a site for a home for convalescent children. The fund agreement provides that income not needed for work on diabetes may be devoted to other research work and to hospital service. Drs. Frederick E. Kredel, Richard A. Kredel and Thomas T. Sheppard were named a committee to supervise the fund, of which the Union Trust Company is trustee.

Nature reports that the library of the Radcliffe Observatory, Oxford, is about to be transferred to its new quarters in South Africa, and publications intended for it should now be addressed to "The Radcliffe Observatory, Pretoria, South Africa," instead of to Oxford.

DISCUSSION

ANAPHYLAXIS

RICHET and associates¹ introduced the term "anaphylaxis" to describe the condition of diminished tolerance toward a mildly poisonous material unexpectedly

encountered by them in experimental animals at a certain time after previous injection of the same material. Richet had expected to produce by his inoculations an *increased* tolerance or immunity (and indeed he did so eventually), but when his animals were re-injected at a certain time interval they were not more,

¹ P. Portier and Ch. Richet, *Compt. rend. Soc. de Biol.*, 54: 170, 1902.

but *less* resistant, exhibiting such a marked sensitivity that they were killed or made severely ill by doses even smaller than those tolerated without harm by normal, untreated animals. In these circumstances the earlier injections seemed to have had, Richet said, an *anaphylactic* effect, that is, an effect contrary to or the inverse of the *prophylactic* (protective) effect he had anticipated. In several of Richet's publications he defined his new word "anaphylaxis" as "the contrary of protection" (*contraire de la phylaxie*).^{1,2,3} Unfortunately, Richet did not explain the exact shade of meaning he attributed to the Greek prefix *ana*, but it seems evident that he was using one of its common meanings, *back* or *backward*, in a somewhat uncommon way, in the sense of *in back*, *in reverse* or *inverse*. Thus, the term was compounded of Greek *ana*, the inverse or contrary of, plus Greek *phylaxis*, protection. Ramon has more recently used the prefix *ana* with exactly this meaning in another important immunological term, "anatoxin."⁴

Richet's literal definition of anaphylaxis appears in the French work "Larousse du XXe Siècle," 1928, but elsewhere it seems to be largely forgotten. In one standard English dictionary⁵ we are told that one of the meanings of *ana* is greatly or excessively, "as in anaphylaxis." This would make the term signify literally "excessive protection"—an obvious absurdity. If we turn to three leading American medical dictionaries we find that each has its own interpretation of the word, and none agrees with Richet's. In one (Gould's Medical Dictionary, 4th edition, 1935), the term is said to be made up of Greek *an*, a privative, plus *phylaxis*, thus having the sense "without protection." This is an attractive interpretation, for it is not inconsistent with the situation the word is used to designate, and this definition has been given by others.⁶ However, the prefix to be defined is clearly *ana*, not *an*. Another dictionary (Stedman's Medical Dictionary, 13th edition, 1936) gives the following unique construction: "Greek *an*, before a vowel *an*, again, + *a*, privative, + *phylaxis*, protection." Doubtless this may be defended, but it is far-fetched, to say the least, and there is nothing to indicate that the inventor of the word had any such notions.

Finally, in a third dictionary (American Illustrated Medical Dictionary, 17th edition, 1937) we discover still another form of literal definition, and the one now most commonly given in authoritative American text-

books⁷ and reviews.⁸ According to this definition, the Greek prefix *ana* means "against," and thus anaphylaxis comes to have quite different implications. The original idea of the mere lack of (expected) defense—the contrary of protection—is changed to a concept of active antagonism—"against protection." The difference is important, especially when, as in a recent monograph,⁹ this definition is taken as the starting point for theoretical discussion.

Tracing the matter back we find that the interpretation "against protection" apparently originated in no less significant a place than in the classical papers of the pioneer American workers in this field.¹⁰ With all due respect to them, it seems clear that they were in error. The Greek prefix *ana* does indeed have several meanings,¹¹ but "against" is not one of them. It is true that if we look up the prefix *an*, the first definition given is "against," as in *answer*, but this is Anglo-Saxon, not Greek.¹¹

The writer would be among the first to insist that the *phenomenon* of anaphylaxis is best defined in terms of experimental facts, but the word itself is still with us, and its literal definition should be agreed upon. We see no reason to depart from the original meaning given the term by Richet himself, namely, the contrary of, or the inverse of, protection.

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PROTOZOAN ECOLOGY¹

A YEAR'S study of protozoan distribution and the sequence of species at several stations in a small artificial lake in Central Oklahoma was made in relation to several environmental factors which have been shown to be of significance to aquatic life. These are temperature, dissolved oxygen, carbon dioxide, and bound and half-bound carbonates, acidity of the water as measured by the pH scale, and the major fluctuations of the water level. Approximately two hundred species were collected at least once and forty-five species were taken eight or more times.

Volvox perglobator, several species of *Diffugia* (notably *D. lobostoma*), several species of *Euglena*, two species of *Tintannus*, *Halteria grandinella* and a few others seemed to be favored by temperatures which were not low. Some species seemed to be

¹ *E.g.*, Chapter 6 in Gay, *Agents of Disease and Host Resistance*, Thomas, 1935.

² *E.g.*, Chapter 73 in "Newer Knowledge of Bacteriology and Immunology," ed. by Jordan and Falk, University of Chicago Press, 1928.

³ R. L. Kahn, "Tissue Immunity," Thomas, 1936, pp. 9-11.

⁴ M. J. Rosenau and J. F. Anderson, *Jour. Infect. Dis.*, 5: 85, 1908.

⁵ Funk and Wagnall's New Standard Dictionary, 1935.

⁶ Contributions from the Zoological Laboratories of the University of Oklahoma, No. 182. Preliminary note.

² Ch. Richet, *Ann. de l'Inst. Pasteur*, 21: 497, 1907.

³ Ch. Richet, "L'anaphylaxie," Paris, 1912.

⁴ G. Ramon, *Ann. de l'Inst. Pasteur*, 38: 1, 1924.

⁵ Webster's New International Dictionary, 2nd edition, 1935.

⁶ *E.g.*, W. Guttman, "Medizinische Terminologie," tenth and eleventh edition, Urban and Schwarzenberg, Berlin, 1919.