sunlight, the action of which is intensified by secondary effects of the wind; such as, for example, a variation of the temperature and moistness of the skin[1] and a suppression of perspiration which, were it present, would provide some protection from the actinic rays of sunlight.

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PERIPHERAL DISTRIBUTION OF FORE-LIMB NERVES IN AMBLYSTOMA

THE distribution of plexus nerves to the forelimb in Amblystoma is a controversial matter. The limb is innervated from the third, fourth and fifth segments. Carpenter[1] states that the fifth nerve contributes innervation exclusively to muscles of the wrist. Nicholas and Barron,[2] however, find that electrical stimulation of any one of the three plexus nerves yields contractions in any of the joints of the limb, with possibly a slight prevalence of innervation of distal muscles by the fifth nerve.

In order to decide the question, I have, at the suggestion of Dr. P. Weiss, undertaken degeneration experiments with 6 specimens of Axolotls (*Amblystoma mexicanum*) of approximately 10 centimeters' body length. One of the three plexus nerves was severed and time allowed for degeneration of peripheral fibers.[3] Sections were made and stained by Weigert-Pal myelin method; and counts were made of the normal as well as the degenerated fibers entering the muscles at various levels of the limb.

After the sectioning of any of the three nerves, degenerated fibers were found at all levels of the limb and in all muscles examined. Although a very slight peripheral increase in the ratio of degenerated to normal nerve fibers was indicated after severing the fifth nerve, and possibly a slight peripheral decrease in the innervation ratio of the fourth nerve, the main fact remains that all three plexus nerves contribute fibers to muscles at all levels of the limb, in confirmation of Nicholas and Barron's findings.

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[1] See Hill and Eidenow, *Proc. Roy. Soc.*, 95–B, 163, 1923–24; also Coblentz and Stair, *Jour. of Res. of National Bureau of Standards*, 15: 142, 1935.

[1] R. L. Carpenter, *Anat. Rec.*, 58 (suppl.): 7, 1934.

[2] J. S. Nicholas and D. H. Barron, *Jour. Comp. Neur.*, 61: 413, 1935.

[3] As determined by control experiments, it takes about two weeks for the degeneration to become complete in these animals. The tributaries to the limb nerves from the plexuses do not always remain as sharply localized within the peripheral nerve trunks as has been described for the frog by Kurkowsky (*Zeits. f. Anat. u. Entw'ges.*, 104: 389, 1935.)

BITTERLING OVIPOSITOR LENGTHENING PRODUCED BY ADRENAL EXTRACTS[1]

MOST investigators agree that the ovipositor of the bitterling fish can be artificially lengthened by adding certain urine specimens to the water in the aquarium. Adult male urine and urine from pregnant women usually give a positive response, while urine from adult non-pregnant women may or may not cause this reaction. A recent report suggested that the male hormone in urine caused the phenomenon. In a single experiment using two fish we failed to get any response with a large dose of crystalline androsterone, although both fish gave a positive reaction when tested with material known to be potent.

The present experiments were undertaken to see if the source of this material could be located by means of tissue extracts. Due to the availability of material, dog tissues were used in most experiments. The following tissues were extracted with ether and tested on standardized bitterlings as previously described: skeletal muscle, heart, brain, lung, kidney, spleen, liver, pancreas, stomach, thyroid and parathyroids together, testes, pituitary, thymus and adrenal. In most cases 20 grams of raw tissue were employed. The only extracts giving a positive response came from the adrenals. In one case the medulla was trimmed out as well as possible and the remaining cortex gave the same increase in ovipositor as the whole gland. Approximately 0.75 to 1.0 gram of adrenal tissue is necessary for a positive reaction, using the crude method of extraction which we have employed. The adrenals from other species tested have all given positive reactions. These include cat, rat, rabbit, beef, guinea pig and human. Tests with dog urine have been negative in the concentrations used. The work is being continued, and the possible significance of this material in human urine is being investigated.

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PRINCIPLES OF SCIENTIFIC PUBLICATION

THERE are certain principles which should but usually do not attend the publication of scientific work.

The first is that publication is a part of research.

The second is that the cost of publication should therefore be borne by the institution or individual sponsoring the work.

Regardless of the pain which acknowledgment into practice of these two unassailable principles may cause —they must be put into practice else institutions and workers convict themselves of shirking a just responsibility.

[1] From the Department of Physiology, the University of Chicago, and the Department of Obstetrics and Gynecology, Rush Medical College.

It ought not to be necessary to remind workers and institutions of science that they belong to a highly favored group: they are allowed to work at what pleases them; they are not subject to the time clock; their incomes enable them to live in comfort; and they have no overhead of rent, light, heat, electricity, supplies and clerical or technical assistance to earn before paying salaries. Yet when the suggestion is made that they pay for the means of dissemination of the work done under their auspices the air is rent with cries of anguish.

The benefits might be several if institutions and workers paid for publication of their effusions: subscription costs could be cut and the individual worker could subscribe to more journals and thus increase his usefulness; fewer papers would be written; the papers would be better written and prepared; papers would be shorter when brevity was adequate for exposition and longer when space was needed for clarity; and the literature could carry all necessary tabulations of raw data, while many unnecessary tables, charts and diagrams would be omitted.

To the idea there can be no objection raised which will withstand the cold light of logic—and scientists should be logical.

What more needs be written save that this is no new procedure but one which was generally employed before publication of scientific work became commercialized.

If scientific societies, journal organizations, and the like have the courage to act according to these basic principles, all the difficulties which to-day beset the publication of scientific work and over which there is so much avid discussion will be dissolved, and science will be the better for it.

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FELLOWSHIPS IN HUMAN BIOLOGY

THROUGH the generosity of an anonymous donor there are available a limited number of fellowships for the current academic year in the department of biology of the School of Hygiene and Public Health of The Johns Hopkins University. They are intended for persons interested in problems of human biology. One, carrying a stipend of $1,200, is open only to a worker who has already taken the doctorate. Others with smaller stipends are open to graduate students who have not yet taken the degree.

Applications setting forth the candidate's training, experience and research interests, as well as any letters in support of the application, should be sent promptly to the undersigned at the address above.

RAYMOND PEARL
THE JOHNS HOPKINS UNIVERSITY

SCIENTIFIC BOOKS

CURRENT TRENDS IN GEOGRAPHY

Elements of Geography. By VERNOR C. FINCH and GLENN T. TREWARTHA. McGraw-Hill Book Company, N. Y. 782 pp. 399 illus. 9 plates. 1936. $4.00.

An Outline of Geography. By PRESTON E. JAMES. Ginn and Company, Boston. 475 pp. 182 illus. 24 plates. 1935. $3.00.

Geography, an Introduction to Human Ecology. By C. LANGDON WHITE and GEORGE T. RENNER. D. Appleton-Century Company, N. Y. 790 pp. 333 illus. 1936. $4.00.

Fundamentals of Economic Geography. By NELS A. BENGTSON and WILLEM VAN ROYEN. Prentice Hall, Inc., N. Y. 802 pp. 300 illus. 1935. $4.25.

THE appearance within a year of four excellent college texts in geography, each distinct in treatment and among the best of their type which have yet been written, reflects the vitality of this old and yet very new field. Geography's recognition as an essential college subject has largely developed since the war. To-day almost every prominent central and western university includes a department, although its introduction along the Atlantic seaboard has been less rapid. In European universities it is even more widespread than in this country. The increasingly scholarly character of the subject, as illustrated in these stimulating volumes, should hasten its spread.

In order to appreciate the divergent approach to the first course in college geography, it may be helpful to summarize the historical preface of Finch and Trewartha. In ancient Greece, where geography had its beginnings, it embraced two distinct fields; the description of places and the understanding of a miscellaneous variety of natural phenomena, such as weather, earthquakes, rivers and tides. Until the middle of the nineteenth century this dual interest continued to define the field. Within recent years, four distinct developments have occurred. In the first place, geography has been relieved of the various divisions of natural science which have assumed their independent place as geology, meteorology, etc. With this narrowing of its physical field, the study of land forms received added attention. The four-fold field of physiography, embracing geomorphology or the study of land forms proper, meteorology, oceanogra-