gonad to the haploid condition and the further course of spermatogenesis then parallels that of the true males quite closely. A detailed investigation of the conditions here involved is under way.

Breeding experiments have shown further that males may arise from isolated hermaphrodites as well as from those which have been fertilized by true males. From twenty-five broods produced by hermaphrodites which had mated with true males, thirty-nine males and 2,548 hermaphrodites resulted. From sixteen broods produced by hermaphrodites which were self-fertilized only, five males and 1,839 hermaphrodites resulted. These data are exclusive of the aberrant male-producing line mentioned above—an isolated hermaphrodite which gave rise to 117 males and sixteen hermaphrodites. The males are exactly alike in general morphology and cytology whether their origin be from cross or self-fertilized hermaphrodites. Since all the eggs of the hermaphroditic ovary seem to undergo reduction it seems probable that the haploid males result from the occasional development of unfertilized eggs. Accordingly it would appear that the male is not necessary for the production of either male or hermaphrodite, although it may occasionally function in the latter case.

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THE NOMENCLATURE OF ORGANIC COMPOUNDS

ALTHOUGH most of us are opposed to the introduction of foreign words and phrases into the language of science we frequently find ourselves resorting to such where no exact English equivalent exists. The writer has often wondered why American and English chemists have not availed themselves of the convenient French terms "function" and "functional grouping." Mr. W. T. Braunholtz, in his translation of Professor Moureu's excellent book, "The Fundamental Principles of Organic Chemistry," has done this and used the word "function" in place of "group," "radical," "linkage," etc. It would seem to be much simpler to say "ethene function," "carbonyl function," "carboxyl function" and "chlorine function," instead of "ethylene linkage," "carbonyl group," "carboxyl radical," etc., especially since we do not ordinarily speak of the "chlorine radical."

Since the word function itself suggests the chemical behavior of an element or group, it is recommended. It is convenient to speak of "functions containing nitrogen," of "functions containing sulphur," etc. On the whole, the proposed term seems to offer some advantages over the three or four words now used in our text-books.

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DOMESTIC CATS FOR DISSECTION

THOSE who teach comparative anatomy in colleges located in small towns, and sometimes in colleges located in larger cities, will appreciate the difficulties of securing enough cats for large classes. The difficulty became so great in Morgantown, a few years ago, that it became necessary to use rats in place of cats. Any one who has been forced to use the rat for dissection in place of the cat will appreciate the great inferiority of the smaller animal, even with the excellent outline by H. R. Hunt that has recently been published by Macmillan.

We have for the last few years secured all the cats we needed by the following means: Besides taking all cats sent to the laboratory at any time, advertisements to the effect that the department will pay fifty cents each and express charges for live, adult cats are inserted in various papers and bulletins sent to the farmers of the state. Names and addresses of those (boys on the farms, chiefly) sending in cats are kept and at the beginning of the "open season" on cats a circular letter is sent to each of those on the list.

This method not only brings in the cats, whereby the destruction of birds is incidentally reduced, but it saves the trouble that is often caused by local advertising for cats which stimulates the small boy and often the college student to the theft of the pet cats of one's neighbors.

A. M. REESE

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THE PROPOSED RANSOM MEMORIAL

A PROGRESS report on the B. H. Ransom memorial fund shows the interest that is being expressed in the proposition not only by Dr. Ransom's fellow countrymen but by parasitologists in numerous foreign countries where he was held in high regard. The fund has now reached the sum of $622; of this amount $121 has come from foreign countries. The latest contributions to be received from abroad are from the small country of Roumania, a prominent parasitologist of Bucharest sending his personal contribution and those of the Minister of Agriculture and the members of the laboratory of parasitology of the Faculty of Veterinary Medicine, these making a total of $20.48. A Japanese parasitologist has pledged $25 to the fund while others in Germany, France, Denmark, China, India and Canada have sent $10 or more in each case. Other countries represented are England, Switzerland, Belgium, Sweden and Italy, making a total of thirteen foreign countries.

A large majority of both foreign and American subscribers have voted that the memorial take the form of a money prize or a scholarship in parasitology. Since the fund is still inadequate for either

of these purposes, the committee has decided to postpone making a definite choice until a later date and it is hoped that American scientists who are interested in this proposition and who have delayed in making their contributions, will do so at an early date.

ELOISE B. CRAM,
Secretary, Ransom Memorial Committee
BUREAU OF ANIMAL INDUSTRY,
WASHINGTON, D. C.

SCIENTIFIC BOOKS

The Surface History of the Earth. By JOHN JOLY. Pp. 192, 13 plates, 11 text figures, and a colored oro-bathographical chart of the world. Oxford University Press, 1925.

IN this good-looking and fascinatingly written book, by an author with a wealth of imagination, we learn that the causes of the earth's changing surface features are (1) radioactivity, and (2) isostasy, both of which "are recognized to-day by most men of science as facts." Looking down the corridor of geologic time with the author, we see the earth's surface periodically heaving and subsiding, each cycle enduring about forty millions of years. There appear to have been about six of these great cycles, punctuated by the revolutions of Dana and LeConte.

This increasing and decreasing of the earth's radius is due to radioactive substances that in their disintegration are continually generating heat deep within the earth. This heat accumulates within the "substratum," which is essentially of basalt, until it attains the melting point. At present, this substratum is solid, and yet we are living on the surface of an "underworld lurid and tremendous." After sufficient heat has been generated to melt the substratum, Joly considers that the lighter continents, essentially of granitic rocks, float upon it. Then the pull of the moon sets up tidal action in the liquid basalt, the continents shift very slowly to the west, the oceans begin to spread more and more widely over the lands, due to the sinking of the latter deeper into the molten substratum, and, finally, the accumulated heat begins to discharge through the substratum (mainly through the oceans), which again congeals and in shrinking presses together the geosynclines into mountain ranges. In the author's own words: "At long intervals in the world's history the moon becomes the main source of those tides in the liquid substratum which enable the accumulated radioactive heat of the ages to escape harmlessly into the ocean, and life to survive from one revolution to the next."

The loss of heat from the basaltic substratum and its consequent change back to solidity take place, Joly thinks, in about five million years. Accordingly, the loss of heat is so slow as to affect appreciably neither the climate of the earth nor the temperature of the oceanic waters.

Then there comes a reversal of the previous state of affairs, the continents begin to rise, the transgressing seas vanish more and more, the rivers lengthen and flow out into the oceans, the greater and heavier oceanic depressions press against the smaller and lighter continents, and the weaker regions, the geosynclines, are pushed together into fold and overthrust mountains which accordingly take up most of the periodic shrinkage of the earth. In the equatorial belt this amounts to about forty miles. The mystery of it all "deepens when we are told that these great folding forces proceed from the ocean, and that their magnitudes are measured by the ocean span."

The average depth of the granitic continents appears to be about twenty miles, but they are thickest where most protuberant and in the ratio of 1 : 8.

The substratum is finally completely reconsolidated. "Great isostatic forces now act on the newly formed compensations, and the whole crushed and folded mass above rises yet higher. This final vertical movement is a characteristic event attending the close of orogenesis." However, the author makes it plain that "the mountains are not built by one grand compressional effort, but by successive efforts of a substratum whose volume changes fluctuate over long intervals of time."

It is well known that Professor Joly is distrustful of the widely accepted calculations of the age of the earth based on the present rates of downbreaking of the minerals uranium and thorium. This comes about because of his long and detailed studies of haloes (pleochroic rings) in micas, which "afford evidence of the remote antiquity of radioactivity in the earth, and of the former existence of yet other radioactive elements." Furthermore, the uranium responsible for the primary ring in the most ancient of these ancient haloes "decayed about fifty times faster than recent measurements indicate. . . . If the offered explanation is correct, it would follow that the chronological reliability of uranium-lead ratios diminishes with the antiquity of the rocks." On the other hand, thorium-lead ratios give much lower readings than do those of uranium-lead. "If thorium-lead ratios are trustworthy, we should divide the uranium-lead ages, as determined for very old rocks, by four." Accordingly, the author falls back on the rates of denudation and the sodium content in the oceans. "By making certain assumptions the sodium method may be stretched to 175 millions of years." He is even willing to stretch the age of the earth to something like two hundred to three hundred millions of years.

In the light of facts like these, the events of the past cease to be mysterious, and become the natural