PROFESSOR LOREN C. PETRY, professor of botany at Syracuse University, who was on leave of absence last year from Syracuse to teach botany at Cornell University, has accepted a permanent professorship in the latter university.

DR. THOMAS G. PHILLIPS, professor of agricultural chemistry at the Ohio State University, has been appointed professor of agricultural chemistry and chemist of the experiment station at the University of New Hampshire.

DR. MARGARET M. HOSKINS has resigned her position as professor of anatomy at the Arkansas University Medical School to accept an appointment at the University and Bellevue Medical College, New York.

DR. WILLIAM KEILLER, dean of the University of Texas Medical Department, has tendered his resignation but will remain in office for another year. Dr. Charles T. Stone, associate professor of clinical medicine, has been appointed professor of medicine to succeed Dr. Marvin L. Graves.

DISCUSSION AND CORRESPONDENCE

BACTERIAL CATALASE

IN a special article published in your issue of November 21, 1924, entitled "Enzymes of thermal algae," Professor R. B. Harvey draws attention to the absence of the ferment catalase in the alga Phormidium Laminosum, found in hot springs. The interest of this finding is undoubted, but it is not unique as the author appears to suppose, since he states "this is the first instance of its (catalase) absence from an organism having been demonstrated." Professor Harvey has apparently overlooked the literature on bacterial catalase, which although it is not very abundant has been slowly accumulating for the last twenty-two years.

Observations on bacterial catalase appear to have been first made in the year 1893 by Gottstein[1] and Beyerinck,[2] and from the onset Beyerinck pointed out the important differentiation afforded by testing bacteria for catalase activity, since lactic acid bacteria lacked it.

Löwenstein[3] was apparently the first to demonstrate the absence of catalase in an anaerobe ten years later. Orla-Jensen 1919[4] again drew attention very particularly to the absence of catalase in lactic acid bacteria. In 1923 McLeod and Gordon[5] suggested a bacterial classification based on the H_2O_2 forming capacities and catalase production of bacteria. Four classes of bacteria were suggested: No. 1, the anaerobes devoid of catalase and very sensitive to H_2O_2; No. 2, the lactic acid bacteria, capable of producing traces or small amounts of H_2O_2 in their cultures and relatively insensitive to that substance also devoid of catalase; No. 3, a few bacteria such as Shiga dysentery bacilli, devoid of catalase but not tending to form peroxide No. 4, the majority of faculative anaerobes and strict aerobes equipped with catalase in the same way that most other cells are.

Kluyver[6] suggests that the bacteria devoid of catalase are those which obtain energy and food entirely by cleavage of proteins and carbohydrates and which do not utilize oxygen.

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[1] Gottstein, *Virchow's Archiv*, 133, 1893, p. 295.

[2] Beyerinck (*Naturwissenschaftliche Rundschau* 8, 1893, p. 671) quoted by Kluyver, see below.

[3] Löwenstein, *Wiener klin. Wochs*, 16, 1903, p. 1393.

[4] Orla-Jensen, "The lactic acid bacteria, etc.," Memoires de l'Academie Roy. d. Sciences et d. Lettres de Danemark, 8me serie, 1919, v. 184.

[5] McLeod and Gordon, *Journal of Path. and Bact.*, 26, 1923, p. 326.

[6] Kluyver, *Zeits. f. Physiol. Chem.*, 138, 1924, p. 100.

THE REFORM OF THE CALENDAR

IN SCIENCE for March 13 (61, 286, 1925), Professor A. L. Candy writes on the reform of the calendar, the burden of his article being that a calendar of 13 months of 4 weeks each is less desirable than one of 4 quarters of 91 days, 3 months each.

Calendar reformers have for many years been dividing the 52 weeks of the year into 13 times 4 in two ways, 13 months of 4 weeks each, or 4 quarters of 13 weeks each. The first proposal, being the more radical, has naturally received more newspaper advertising in this country; but because of the enormous number of transactions in every-day life on a quarterly or semi-annual basis, the second has probably received more serious consideration in scientific circles. For instance, back in 1884 a prize of 5,000 francs was offered for the best plan of calendar reform, the competition being under French supervision. First and second prizes were awarded for calendars of 4 quarters, each quarter consisting of three months of lengths 31, 30 and 30 days; as Professor Candy proposes.

The simplest proposal for reforming the calendar is that we take one day from each of the months, March, May and August, and add two days to February and one to April. Further, in leap years the extra day should not be added to February, which comes in the middle of a quarter, but to June. That is, in ordinary years, June would have 30 days, and in leap years 31 days. This simple adjustment would make the quar-

ters exactly alike, except that the last quarter would contain an extra day, December 31, and in leap years the second quarter would also contain an extra day, June 31.

It has been pointed out[1] that this would make possible many of the advantages of a perpetual calendar. Many of the troubles we now have with engagements on the first Monday of the month or the third Wednesday of a particular month could be eliminated.

The real enthusiasts, however, are not content with this, but want a perpetual calendar, a given day of the month always falling on the same day of the week. The undoubted advantages of such a permanency are many, but unfortunately ordinary years contain one extra day over the 52 weeks, and leap years contain two, which must be disposed of. If they can be eliminated the calendar becomes extremely simple. In the 13 months' proposal it is only necessary to remember a single month. In the other, the calendar for a quarter must be memorized, but advocates claim that if adopted, a child would have it memorized by the time he is 10 years old.

THE "NO-WEEK" DAY CALENDAR

The usual suggestion is that certain "no-week" holidays be inserted. This is the suggestion of Professor Candy, and it was the method proposed by the prize winners in the French competition. New Year's Day is a "no-week" holiday between December and January, and in leap years, another "no-week" holiday, which we may term *Leap Day,* must be inserted, usually along with New Year's between December and January, or as Professor Candy suggests in the middle of the year between June and July.

The objection to this proposal is that it interferes with the regular sequence of seven days in the week, which has been undisturbed for hundreds of years. Perhaps these objections are sentimental and religious, rather than scientific, but the fact remains they are very real to a large part of the human race, and must be considered.

THE INTERCALARY WEEK CALENDAR

To meet this objection and still secure an absolutely perpetual calendar, the Intercalary Week Calendar has been suggested. Ordinary years would consist of 52 weeks, and leap years of 53 weeks, instead of the years of 365 days and 366 days now in use. As this proposal is not so well known, we will treat it at greater length than the "no-week" day proposal.

Instead of one "no-week" holiday in ordinary years and two in leap years, there would be an extra week, perhaps considered a holiday, every leap year, or about every five years. The length of the year is 52.17746 weeks. Searle and Rigge have proposed the following rule for leap years in weeks: "Years divisible by 5 are leap years unless they are also divisible by 50, and further, the first year divisible by 5 following a century divisible by 400 is to be excepted."

This represents the year in weeks as $52+1/5-1/50-1/400$, or 52.1775 weeks, the error being negligible, a week in some 25,000 years. The obvious objection to this plan is the greater variation in the length of the year. As suggested by Searle and Rigge there would be no leap year between 1995 and 2010, and in that 15 years the seasons would shift more than two weeks with respect to the months. It occurred to me that a different formula might lessen this effect, and after a few trials I found that $52+1/5-1/40+1/400=52.1775$. This formula expressed in words gives the rule: *"Years divisible by 5 are leap years unless also divisible by 40, in which case they are leap years only if divisible by 400."* By this rule, leap years would never be omitted at a closer interval than 40 years and the objectionable shift of the seasons would be lessened. The error in the length of the year is exactly that of the formula of Searle and Rigge, in fact, exactly that of the Gregorian year now in use. For comparison we give the Gregorian rule for leap days: "Years divisible by 4 are leap years unless also divisible by 100, in which case they are leap years only if divisible by 400."

The Intercalary Week Calendar should be considered more seriously by those advocating a perpetual calendar, with a given day of the month always falling on the same day of the week. It offers a simple means of attaining this end without the objectionable "no-week" day. The rule for leap years is simple, and the error in the assumed length of the year is no greater than in the calendar now in use.

The extra week in leap year would give, at the end of some quarter, a month of 37 days about once in 5 years. The variation of 30 to 37 days is little worse than the 28 to 31 occurring regularly in our present calendar, and it would occur only once in 5 years. Thousands of teachers are now employed on a ten-month basis, and have, as far as salary is concerned, a ten-month year, the months varying from 28 to 90 days, or worse.

The real objection is that the use of leap weeks necessitates a variation in the date of the equinox, that is, in the seasons. However, climatic variations from year to year cause a variation of about a month in the time of spring planting and the blossoming of fruit trees. A little additional variation would cause persons engaged in agriculture no great inconvenience, although it would inconvenience the weather bureau and those collecting meteorological statistics. The average person would be affected much less than by the variation we now have of 35 days in the time of Easter.

[1] Philip, "The Reform of the Calendar," page 119.

SUMMARY

Persons who are interested in an immediate reform of the calendar might well confine their efforts to a readjustment of the lengths of the months. A few minor changes would make possible simplifications of benefit to every one.

Those making a study of perpetual calendars, expecting to eventually secure the adoption of one, should consider not only the "no-week" day, but also the "intercalary week."

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THE JONAS VILES, JR., MEMORIAL SCHOLARSHIP

THE department of zoology of the University of Missouri is the recipient of a scholarship which is sufficiently unique to warrant formal record in SCIENCE. Jonas Viles, Jr., a member of the class of 1924 in arts and sciences in this institution, died on July 30, 1924, at the age of nineteen years, after suffering acutely for some weeks from a cancer of the lungs that had been earlier diagnosed as tuberculosis. He had served the department above mentioned as an undergraduate assistant since the middle of his junior year and was majoring there. In the season of 1923–24 he chose the general field of zoological science as his life work and was to have entered the Harvard Medical School in September, 1924, to prepare himself for teaching and investigation in one of the fundamental medical sciences. For the summer of 1924 he had been admitted to the course in invertebrate zoology at the Marine Biological Laboratory, where he was to have occupied one of the places for which the University of Missouri is a subscriber. He was looking forward to this work as the realization of a dream of long standing and as marking the beginning of many such summers. At the time of his death there was a life insurance of one thousand dollars and a substantial sum accumulated from his own earnings, which latter he had planned to spend for his first year of graduate work. During the last weeks of his life he talked constantly of his hopes for the summer and expressed the wish, as he began to sense the hopelessness of his condition, that he had enough to found a scholarship of several hundred dollars to enable students from Missouri to pursue such summer work as he had intended; for he understood the obstacle of traveling expenses that often proves an insurmountable barrier to students from the Middle West who wish to reach either coast.

Because of this desire, expressed by their son as something he wished to see accomplished, his parents, Professor and Mrs. Viles, are setting aside their son's accumulations, plus such other amount as may be necessary to produce an annual income of $100 as the above-mentioned scholarship. By the terms of the gift, this sum is to be used to defray the traveling and other personal expenses of an advanced student during summer work at a suitable institution. Because of the circumstances, the Marine Biological Laboratory at Woods Hole, Massachusetts, will receive special consideration, but the department is free to select another institution that may better suit the needs of the appointee for a given summer. It is not intended that the money derived from this scholarship shall be used to pay for a table or other fees commonly subscribed for by an institution, but rather to place a middle western student upon an equal footing with those for whom the cost of transportation is not a serious burden. The foundation will, we are sure, prove a great incentive in the zoological department at Missouri. It is unique in its origin and in the spirit which led to its establishment, representing as it does a gift to others of what a youth had hoped for himself but was not destined to realize. Jonas Viles, Jr., was a boy of fine intellectual endowment and high ideals, which, taken with his background of cultural training in the home and in the university, would have carried him far in his chosen profession. What would have doubtless proved a brilliant career has ended at its threshold, but he has provided others with the means for an induction into the work he would have made his own.

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SCIENTIFIC BOOKS

Arrowsmith. By SINCLAIR LEWIS. Harcourt Brace and Company.

IN Arrowsmith Lewis continues to blaze the trail in American literature. Here is a novel of the first rank with a scientist for its main character. This is significant in that it is an added bit of evidence of a certain shift in our civilization shown by the growing interest of the layman in scientific matters. With the coming of this interest, suspicion has given way to support. Some of this attitude is probably due to the discovery that Science will pay dividends, and some is due to the hospitality shown to the layman by Science. The High Priests have taken off their false whiskers and have given Mr. Average Citizen a peep at the ceremonies going on inside the Temples.

It required no small amount of courage on the part of Lewis to choose a scientist for his hero and to write of his work, clearly and intelligently, without yielding to the temptation to write down to the technical knowledge of a novel reading public. This