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

he has done, aided undoubtedly by the realization that there is a certain quality in the courage of an author with two best sellers to his credit that is not strained by such an innovation.

Arrowsmith is the tale of a young so-called Anglo-Saxon, born in the State of Winnemac, which is bounded by Michigan, Ohio, Illinois and Indiana. He gets his first glimpse of the healing art in the office of a country doctor. He studies medicine at the State University and marries while still a student. After graduation the story carries him through an internship; into the vigorous competition of practice in a small town; thence to the Department of Public Health in Nautilus under Dr. Almus Pickerbaugh, the "two-fisted fightin' poet doc"; to the Rouncefield Clinic as pathologist in a group practice; to the McGurk Institute where he again comes under the influence of his old teacher Gottleib. While here he discovers the bacteriophage and is on the point of being made head of his own department when it is found that D'Hérelle had already made and reported the discovery. In view of this, his department does not develop. Later he is sent to an island in the West Indies to try a plague bacteriophage on the natives who are dying in large numbers from the disease. Here he loses by death his wife Leora and his close friend Sondelius. He returns to the institute, marries a prominent society woman who, curiously enough, bears him a son. He becomes dissatisfied and the book leaves him in a shack in the Vermont hills where he finds peace in his work and the companionship of Terry Wickett, a former worker at the institute.

This brief synopsis fails completely to convey an adequate idea of the richness of the plot or variety of the characters. Gottleib, Pickerbaugh, Holabird, Sondelius, Terry Wickett, Leora . . . any one of them would have filled a novel. In Leora, Lewis has done a fine piece of pioneering. Here is a heroine that is neither a fallen woman struggling up from the depths, nor a wide eyed Polyanna bathed in sweetness and light. She is real and human; full of faults but lovable. One mourns her passing during the plague epidemic. What a tale it would have made, had she married Terry Wickett!

Lewis had as a collaborator Paul H. DeKruif, and much of the verisimilitude of the action and characters is no doubt the result of his efforts. From the charming little verse (somewhat expurgated) about the old German who lived on Olympus, that every medical student chants as a prayer while learning the cranial nerves, to the formula accounting for the action of beta and gamma rays, the story rings true. The scientist and more specifically the medical man, has appeared in literature in the past. The former hid in his laboratory, surrounded by retorts and carried on mysterious reactions with unnamed chemicals. Satirists have shot at the medical man with their delicate barbs, and he has loomed in the background of leaden dramas, chanting a doleful prophecy of the inevitable sequelae of a loose life, torn between the conflicting forces of professional ethics and a high regard for the beautiful heroine. But these characters were always frankly fictional, and other scientists never recognized their counterparts among the members of the profession. In Arrowsmith, medical men will meet all their classmates and some of their teachers in the first eight chapters, and most of their fellow workers in the remaining thirty.

Lewis prefers the thrust of the rapier to the swish of the broadsword and in this he has shown a rare sense of proportion. It is not fitting to use a broadsword on toy balloons. In his agile fencing he touches many raw spots. He lays bare the petty jealousies of the small town practice and the potent effect of small town gossip, either for or against the practicing physician. He shows the inability of the small town mind to dissociate between a man's skill with the scalpel and his belief in the Book of Genesis. He turns a glaring spotlight on public health activities, throwing into bold relief the political machinery that is grinding away behind the scenes. He tells of the supply houses that furnish the go-gettem physician with his Belasco stage settings of scientific machinery, guaranteed to increase his practice enormously, or money back if not satisfied. He thrusts at the commercial organizations who produce serums and vaccines for every ill that human flesh is heir to, and who are not above producing nostrums, provided these are not sold under their label. He exposes the fawning that is indulged in by practically all members of his McGurk Institute, for the sole purpose of currying favor with one's immediate superior. He hints that this institute is prone to rush into print with poorly developed results, merely for the sake of showing that it is producing, even though the product be second rate. He shows the clash between the desire for a scientifically controlled experiment and the humanistic urge to cure or relieve suffering. He paints a touching picture of the war times, with the bewildered scientist trying to act at ease in leather puttees and a Sam Browne belt. There is scarcely a foible of medicine or public health that is not touched on, and none of these is dragged into the narrative by force, but all move in smoothly and logically.

Lewis is skilled in deft caricature and while some of the characters may seem slightly overdrawn, no doubt the originals, when such existed, were let off

with light sentences. The climax of the Health Fair held in the Reverend Billy Sunday's Tabernacle, when the eugenic family proves to be a gang of well-known crooks, and when the fireman sets the place on fire by dropping a lighted match into the Clean Up and Prevent Fires Exhibit . . . certainly this is a purple passage of burlesque. In spite of the intricate pattern of the plot, the rich variety of characters and the wide range of scene, the story has a smooth, unbroken rhythm that maintains its pace throughout. Lewis displays his craftsmanship when he assembles the materials, visits the scene, and then writes a description of a plague epidemic that could only have been written by an eye witness . . . or an artist.

Every intelligent medical man with a sense of humor will enjoy the book. Every medical student who feels vague rumblings of scientific curiosity or the urge for pure research, should read it. All embryo scientists, or even those nearing full term, may turn to it as a sanctuary, because, after all, the flame that burns in Arrowsmith, sometimes bright and sometimes flickering low; the moments of high egotism and the dark moments of doubt; the times of pride in the profession and the times of blushing shame; the bursts of frenzied work in the confidence of the outcome and the long spells of idleness shrouded in despair; the wavering allegiance between Truth and Mammon . . . these are common property. In Main Street, Lewis was the depicter of the American scene. In Babbitt, he was the pathologist at the necropsy table with Mr. Babbitt on the slab. In Arrowsmith, he is an artist.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

HEAVY MINERAL OIL AS A PERMANENT NON-VOLATILE PRESERVATIVE FOR VALUABLE BIOLOGICAL MATERIAL

ANY one engaged in routine curatorial work has no doubt often found, in going over alcoholically preserved material, that the liquid had completely evaporated from defectively corked or infrequently inspected bottles, resulting either in the destruction or serious deterioration of much valuable material. One or two such accidents is all that is necessary to make an otherwise valuable specimen practically worthless. Where adequate curatorial assistance is not available, or where material of this sort is neglected for long periods of time, as is very often the case with small or inactive collections, the aggregate amount of destruction arising from this source alone is sometimes almost total.

Small vials, no matter how well they may appear to be stoppered, are never safe so long as alcohol is used as a preservative. Where type material is concerned this perpetual risk is doubly regrettable.

In consequence of these facts it would appear that a substitute preservative involving none of these objections would be a highly desirable acquisition.

Such a material has been found and tested out sufficiently to merit serious consideration in this connection. The process involved in its utilization is here given. The technique developed applies particularly to the smaller arachnids and insects, but could unquestionably be extended to many other groups.

The specimen is killed and dehydrated in the usual manner by means of 95 per cent. grain alcohol. The specimen should be transferred at least once to clean alcohol from that in which it was killed before taking the next step. After dehydration the specimen is transferred to carbol-xylene (25 per cent. carbolic acid crystals in 75 per cent. xylene). After a sufficient lapse of time, the material is transferred to pure xylene, in order to remove all traces of the carbolic acid which is immiscible in the oil. From this last reagent the specimens are transferred to any one of the highly refined, colorless and highly viscous mineral oils, of which Squibbs and Nujol are typical and well-known examples. In large quantities "Oronite Crystal Oil," as put out by the Standard Oil Company of California, is completely satisfactory for this work and very much cheaper than either of the two medicinal oils above mentioned. This material should cost somewhat less than alcohol, but, of course, the necessary stages requiring the use of xylol would make the total first cost somewhat higher. In the long run, however, the oil should be much more economical, since there would be practically no future necessity of replenishing that lost through evaporation as is always the case with alcohol. Carbol-xylene is used as an economical expedient to obviate the otherwise necessary step of passing material through absolute alcohol.

Specimens preserved in this type of oil retain their original colors much better than in alcohol; there is no danger of desiccation arising from the rapid evaporation of the preserving fluid; the specimens retain much of their original flexibility and consequently can be studied and handled with much less danger of breakage than is the case with alcohol preserved and hardened material; and finally the optical qualities of the oil are practically identical (the refractive index is higher: about 1.47) with those of alcohol, so that no disadvantage is experienced on this score. Specimens thus preserved are practically as free from possible injury or deterioration as balsam mounted, slide