bright as day' and was reported sighted as far south as Jacksonville and as far north as Florence, flashed through space a few minutes after 1 o'clock this morning. The first report of the meteor came to *The News and Courier* from C. M. Dempsey, night watchman at the port terminals. Mr. Dempsey said that the daylight continued for at least five seconds. His report was followed quickly by a message from the Atlantic Coast Line railroad saying that radio operators all the way from Florence to Jacksonville had reported the meteor. Several other phone calls were received from persons in this section. Mr. Dempsey said also that he had seen two smaller meteors a few minutes after 9 o'clock last night."

THE Connecticut Arboretum at Connecticut College was dedicated on October 6 with U. S. Senator Frederic C. Walcott as the principal speaker. The arboretum consists of about sixty acres of the Connecticut College property which has been set aside for the preservation and propagation of the native plant life of Connecticut. Planting in the area will be done under the direction of Dr. George S. Avery, Jr., professor of botany at the college and director of the arboretum.

DISCUSSION

BACKGROUND OF MATHEMATICS IN AMERICA

THE history of mathematics in America is greatly illuminated by the history of the coeval mathematics in Europe. For more than a hundred years after the discovery of America (1492) none of the English universities had established a chair of mathematics. The first such chair was founded at Gresham College, London, in 1596 and the second at Oxford in 1619. The first appointee to both of these chairs was H. Briggs (1556–1630), who is widely known in connection with tables of logarithms, and who has the singular distinction of holding in succession the two earliest chairs of mathematics that were founded in England. Cambridge University, England, did not establish a professorship of mathematics until 1662, more than a quarter of a century after Harvard University was founded (1636). The first appointee to this chair was I. Barrow, who resigned seven years later in favor of his pupil, I. Newton, who made this chair famous for all times.

The slowness with which mathematics was emphasized in the schools established by the early white settlers in our country is partly explained by the fact that these settlers left their native countries before mathematics was commonly regarded as an essential part of a liberal education. The pioneers who came to our land to explore and develop a new country were paralleled at home by the equally aggressive mathematical pioneers who entered into the then new and unexplored fields of analytic geometry and calculus. The fact that the latter pioneers did not mix with the former explains why no American contemporary of R. Descartes, I. Newton, G. W. Leibniz, the Bernoullis, A. L. Cauchy, L. Euler and J. L. Lagrange can be found who can be favorably compared with any of these from the standpoint of mathematical contributions. Just as in other countries, so in our country the development of mathematics did not prosper until positions were established which were filled by those selected on account of proved ability and which afforded their incumbents leisure to develop these abilities.

Early American mathematics as derived from Europe was quite cosmopolitan, just as the white settlers in America came from various European countries. In view of the relatively great mathematical advances made in France shortly after the Revolutionary War and the aid rendered by France during this war to the colonies which later became the United States, it is natural that French mathematicians had a dominating influence on American mathematics at that time and that a relatively large number of French text-books were translated for use in American schools during the first half of the nineteenth century. During the second half of this century German mathematicians attracted most of our mathematical students who went abroad for further study and they continued to do so up to the beginning of the world war. The unexcelled opportunities afforded by some of our own universities are, however, now commonly recognized, but the background of American mathematics is still decidedly European, even if some of the useful recent extensions exhibit fruitful American cooperation.

The fact to be emphasized about American mathematics is that it is essentially a mathematics of cooperation with European mathematicians and has no decidedly distinctive features. It is true that in early times the applications to surveying, navigation and astronomy were especially stressed, but this had been done elsewhere in the early development of our subject and hence it did not give rise to a new type of mathematics. Nearly all the contributions towards the development of mathematics in our country are due to professors in our universities. Although Harvard is the oldest American university it was not the first to establish a chair of mathematics. Such a chair was first founded at William and Mary College which is next to Harvard in seniority (1693) and provided for such a chair in its charter, which seems to have been first filled in 1711 by the appointment of a man

named Le Fevre, about whom little is known. None of the professors of mathematics in our early universities can be compared favorably with the best of their contemporaries in Europe holding similar positions up to the latter half of the nineteenth century, when B. Peirce, of Harvard, began to make valuable contributions to the advancement of our subject.

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SCIENTIFIC LITERATURE

PROFESSOR VISSCHER'S article in SCIENCE of September 14 (p. 245) describes a difficult situation, but I think there are serious objections to his proposed remedy. I venture to call attention to a case in which it seems to me that the library difficulty has been fairly overcome. Economic entomology has in modern times developed to an enormous extent and has become exceedingly diversified. Works relating to it continually appear in many countries, in all sorts of languages, many for instance in Russian. If some agency would bring all these books and papers promptly to my desk on publication, I could not find time to read them, and in many cases, owing to the language, I could not read them at all. Many, perhaps most, are primarily intended for use in particular regions, or by particular classes of people, yet they usually contain something of broader interest. Now the Imperial Institute of Entomology, in London, produces monthly the *Review of Applied Entomology,* in two series, A. Agricultural, B. Medical and Veterinary. It is strictly up to date; thus I find the August, 1934, issue contains abstracts of articles received during June and July of the same year. The reviews or abstracts are sufficiently full to give an excellent idea of the work done, and usually include most of the matter of general interest. I have not rarely had the experience of reading an article, and not fully appreciating its significance until I read the abstract in the *Review.* In about two hours, each month, I am able to run over the whole field of current economic entomology, and note the matters which are of particular interest to me. Frequently I note discussions of broad biological interest, such as those on the carrying of insects by air currents, or those on the diverse forms of malaria mosquitoes. The cost is negligible; the price is to be raised next year, but even then it will be less than a dollar a month. The two prime features are (1) promptness and (2) well-written and sufficiently full reviews by people who know the subject.

When we consider how and why money is expended in this country, it seems ridiculous to complain about the cost of printing scientific papers. Institutions can send out costly expeditions, and yet declare they can not afford to pay for printing the results of the work of their staff. One of the best known and most highly esteemed scientific explorers in this country told me that he found it comparatively easy to raise money for an expedition, almost impossible to get it for publication, which is after all the result and purpose of the expedition. The whole situation depends on a wrong mental attitude and not on any real lack of power to accomplish what ought to be done. The lamentable consequence is that competent men will not spend their best years doing work of a comprehensive or fundamental character, not knowing how or whether it can be printed. I recently heard the story of one of the best entomological works produced in this country during the present century. The author had to put up $10,000 to get it published. Fortunately, the sales have been sufficient to repay the money, I presume without interest. But how many of us can afford to provide such a subsidy? The actual work on the book over many years brings of course no financial reward, nor was it expected to do so. Is it not conceivable that a more enlightened day will come when such an author will be considered a great public benefactor and will be relieved of all financial anxiety concerning publication?

Returning briefly to the problem of the reader and the library, what we especially need are good synopses which bring out the salient known facts and serve to guide the reader to the detailed literature. As examples of this type of work I think especially of two which have been published very lately. One is "The Classification of Insects: a Key to the Known Families of Insects and Other Terrestrial Arthropods," by C. T. Brues and A. L. Melander, published by the Museum of Comparative Zoology, Harvard, 1932. The other is "The Families and Genera of North American Diptera," by C. H. Curran, 1934. As time-savers and preventers of error, such works can hardly be overestimated, although, in the nature of things, they can not attain perfection. They enable the worker to review the field of his science and stimulate him to search for new facts which will add to or correct the record.

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PHOTODYNAMIC ACTION OF METHYLENE BLUE ON PLANT VIRUSES

PERDRAU and Todd,[1] studying the photodynamic action of methylene blue on nine animal viruses and on several strains of bacteriophage, found that the viruses of vaccinia, herpes, fowl-plague, louping-ill, Borna disease, Fujinami's tumor and canine distemper, as they exist in filtrates or other fluids devoid of

[1] *Proc. Roy. Soc.,* B, Vol. 112, pp. 277 to 287 and 288 to 297.