

we have two constants sustaining a constant relation to each other. They are not so far apart, too, in the matter of age, but that each may understand the other. The relation is essentially that of parent and child. The student body may be regarded as of a healthily radical temper of mind, and the faculty as healthily conservative. Sociologists maintain that both radicals and conservatives need to be united in a community, with the center of gravity slightly on the radical side, if that community is to be healthily progressive. With the faculty and students viewed as above, the conditions are right for a sanely progressive institution, since we may, perhaps, assume that the larger size of the student body would give the desired overplus of radicalness. At any rate, there would be a steadiness of control and of purpose, and a sufficiency of sympathy to insure hearty cooperation and splendid scholarly results.

When, however, we consider the matter from the side of the one-man power, whether that man be president, or some other official with the bit in his teeth, the conditions do not seem to be so favorable for desirable results. If the president be young—we will say thirty years of age, as sometimes happens—the center of gravity is too much upon the radical side; when the same man gets to be sixty-five or seventy, provided he stays that long, or has an elderly successor, the balance shifts too much in the other direction. It is true, of course, that there are conservative young men and progressive old men, but, none the less, the fluctuations in the age of the controlling official constitute a variable more likely than not to be a disturbing factor in the otherwise constant and harmonious relation between faculty and students. In the case of the elderly man being in supreme control, the relation of parent to child will be superseded by that of grandparent to grandchild, with consequent ready indulgence or excessive rigor. The latter is, perhaps, the more likely, since the nervous strain develops irritability and the exercise of power breeds arbitrariness.

When the problem is viewed from this angle, the wise policy would seem to be to have fac-

ulty control in an educational institution, rather than that any one man should reign supreme.

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THE MATTER OF UNIVERSITY FELLOWSHIPS

TO THE EDITOR OF SCIENCE: The address of Dr. Jordan as retiring president of the American Association for the Advancement of Science, printed in your issue for December 30, contains many things that will appeal to every one as both true and timely; there is the more reason to regret that some things are said against which, I think, protest should be made. I do not believe it is true, as he seems to think, that the system of university fellowships is a powerful influence working against our best university ideals. Dr. Jordan seems to me to have lost sight of some very important facts when he stigmatizes the fellowship system as one "whereby men are hired to work under men they do not care for and along lines which lead not to the truth they love, but to a degree and a career." I am sure he does injustice when he asserts that "The embryo professor asks for his training not the man of genius who will make him over after his kind, but the university which will pay his expenses while he goes on to qualify for an instructor's position."

All will admit that the fellowship system has not always been wisely administered; that evils have crept into the practise of some institutions; that these ought to be (I think can be) corrected. We have all had experience of the man whose letter expresses a desire to work at our particular university and inquires, "What inducements can you offer me to come?" Undeniably, universities are themselves responsible in some measure for making possible such an attitude; but it would seem that only a particularly unlucky experience could make one regard this as typical of the graduate student in general.

Dr. Jordan's ideal university is one where advanced students are "gathered around a man they love, and from whose methods and

enthusiasm the young men go away to be like centers of enthusiasm for others." It is a high and noble ideal, and one towards which we are all most heartily ready to strive; but it is rather difficult to follow the logic of the conclusion that a fellowship system tends to destroy this ideal. It would be invidious to refer to particular men or universities had not Dr. Jordan himself set the example by naming, among others, four eminent teachers at one university who exemplify the ideal he has in mind. It is entirely true that these men drew students about them by the force of their ability and personality; but is it not also true that the university which placed them on its faculty did more than any other American university had previously done, by a system of wisely administered fellowships, to make such a gathering of students possible? It was my own good fortune to be one of those students, and I count it not only as a lasting honor but as the most important turning point in my life that appointment to a university fellowship enabled me to place myself under the inspiring influence of three of the four men whom Dr. Jordan names. I am sure that many others whose after lives have been given to teaching and research can bear like witness.

Dr. Jordan argues that it would be a difficult task to produce a Darwin, given the raw material, "if a fellowship of \$500 had drawn him to a laboratory of some lesser plodder." But what does this prove if not the desirability of trying to widen the usefulness of the gifted teacher by making it easier to gather students of promise about him, and by helping such students as well as we can to the opportunity they seek? Happily for science, the circumstances of the youthful Darwin placed him beyond the need of such aid. He was free to "walk with Henslow" (to quote Dr. Jordan's own happy phrase); but had it been otherwise, who can estimate the value to the world of a helping hand to Darwin at a critical moment? We are sometimes told that fellowships tend to "pauperize" students. I do not believe it. All honor to the man who works his own way through college and university life. But the years of graduate study,

perhaps above all others, ought to be a time of undisturbed and unremitting devotion to one's chosen work. The man whose ability and scholarship have proved him worthy to enjoy the privilege of at least one such year is in no danger of pauperization by the fellowship that gives him the opportunity. If he has been well chosen, his stipend is as well earned as that of any officer of the university. In my belief the university makes no better investment than the \$500 a year that enables the man of talent, but of limited means, to carry on his work, and the example and influence of such men among the body of graduate students constitute one of the best assets of the university.

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COLUMBIA UNIVERSITY,

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SCIENTIFIC BOOKS

A Text-book of Botany for Colleges and Universities, by members of the botanical staff of the University of Chicago, JOHN MERLE COULTER, Ph.D., Professor of Plant Morphology; CHARLES REID BARNES, Ph.D., late Professor of Plant Physiology; HENRY CHANDLER COWLES, Ph.D., Professor Plant Ecology. Vol. I., Morphology and Physiology. New York, Cincinnati and Chicago, American Book Company. 8vo. Pp. viii + 484 + 12.

When Strasburger with his colleagues in the University of Bonn brought out a text-book of botany it was promptly named the "Bonn Text-book," following which precedent it has been suggested that the book before us should be named the "Chicago Text-book." And this American book promises to be a worthy rival of its German predecessor, which no doubt it will replace in many college and university classes. When complete, the book will include morphology, physiology and ecology, but for some reason not stated in the preface, only the first and second are now published. Probably that will follow before long, as some reference is made in the preface to "Part III." as at least partly prepared for publication.

The book is doubly interesting in that it