SCIENCE

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A NEW PHASE OF UNIVERSITY EXTENSION.

JUST at the present critical stage of the American movement for extension teaching the practical pedagogy of this imported phase of educational activity is up for sharp and earnest discussion. It is agreed that however properly the system may have been been reared in England, American methods must be applied to its life if it is to become a recognized force in American education. The naturalization of University Extension must therefore pre-eminently mean its further organization toward useful ends.

The recent article of Professor Willis Boughton on "Graded Work in Philadelphia," strikes the key-note for an earnest and scientific discussion, which we hope may be continued until the American society shall have nurtured extension teaching into one of the most vital forms of educational activity. Professor Boughton has outlined the plan for graded work to be pursued at certain centres, and has, moreover, called attention to the division of the Philadelphia work into "departments," although a thorough organization of these "departments" has not as yet been distinctly mooted. It is also here pertinent to note that the president of the American society, Dr. Edmund J. James, has in Philadelphia introduced the excellent plan of faculty meetings of the lecturers, with the view of eliciting the practical pedagogics of the subject.

As an attempt to continue a discussion looking toward efficient organization of university extension, the writer presents for candid criticism the following somewhat comprehensive suggestions. Stated with almost dogmatic brevity, the scheme is submitted, none the less, in the scientific spirit, and expects no other mark of favor than that derived from its accordance with the experienced facts.

The scheme proposes to establish in each great university centre extension faculties and sub-faculties of the various departments of knowledge for the development of real class-work and individual study, alongside the present lecture system. Each faculty shall in itself form a complete organization, with officers of good executive talent and broad sympathies. The presidents of the faculties, together with the president of the centre, shall form a body advisory to the executive committee of the centre.

It shall be the duty of each president, in concert with his faculty, to develop the best methods of exciting popular interest in the special subjects, and especially to determine upon the pedagogic methods best adapted to the particular subjects and to the various grades of students seeking the extension classes.

Each faculty shall, as far as practicable, arrange for class instruction continuing during eight or nine months of the year, or at any rate for courses of sufficient length to meet some tangible purpose.

Each faculty, and finally each professor, shall aim to carry along the individual in his work, rather than aim to present finely-wrought lectures — the latter being used as accessory only to the main purpose.

Inasmuch as such proposed instruction would of necessity be more expensive and demand a closer relation between the professor and the student than the present methods of extension organization seem to encourage, it would seem desirable that these special extension classes be sharply distinguished from the general extension classes. The latter are and should be open to all members, but the former only to such members as meet the terms for the special tuition, and are willing to engage in regular student work.

It would also seem proper that the tuition for each special class course should, to some extent, depend upon the number of students applying, as well as upon the nature of the subject developed.

The eventual outcome of such scheme of instruction would doubtless be the award of highly-prized certificates of the work done, or what comes to the same, the conferring of degrees, either through the universities or through the extension society itself.

As an application of this scheme of organization to a particular department, let us suppose the mathematical professors, say of the Philadelphia extension course, to be organized as a unit faculty. The courses they should propose would range from algebra, through a goodly variety of applied mathematics, to general, or even practical astronomy. Each course would be carried on in some relation to the other courses. The most cordial co-operation would exist between the several classes and professors, and both students and professors work in one or the other class, as the furtherance of the most efficient work and teaching might demand.

As an example of the method suggested, when carried down to an actual class course, the writer may be permitted to instance a course in the theory and practice of surveying, intended as one element of a school of mathematics recently proposed by him to the Philadelphia Society for University Extension. The course is based on a demand for such instruction coming to him from two classes of students, viz., (1) practical surveyors ill equipped in the mathematics of the subject, and (2) young men, who, although busily engaged during the day in other employments, desire, if possible, to equip themselves for the life of a surveyor or civil engineer. The instruction is to be given in class, by correspondence, and in the field. The class instruction, given one evening each week for eight months, embraces text-book work pursued under direction, and as rapidly as each student is able lectures on instruments, their construction, adjustment, and use, and on methods of field and office work. Correspondence is encouraged for the purpose of eliciting a better knowledge of each man's difficulties. Replies are to be given through the medium of a specially-trained stenographer or in class. Field instruction is necessarily limited to occasional work of Saturday afternoons. Practically every student is also his own class, pursuing his own work, and receiving help according to his individual needs. The method of learning by doing — ever a good one provided it is doing by method — meets also, as thus guided, the requirements of the ungraded mass of students seeking the special knowledge.

The writer would violate the very spirit of his suggestion were he to attempt to show in detail how it might apply to well-organized evening schools of chemistry, or biology, or history. But he ventures to suggest the pedagogic purposes must in these subjects differ *inter se* and from those of mathematics, and that here the chemical laboratory, the museum of natural history, and the seminar method might find interesting and useful extension.

A fair appreciation of the occasion for the above suggestions requires a concise statement of some of the assumptions made in reference to the aims and ends of university extension. It has been assumed that the final aim is to bring as much of each subject attempted, to each individual student, as the nature of the subject, the time, and the capacity of the individual student may warrant.

It has been assumed that the extension society, as the popular representative of the university, is jealously alive to the danger of indirectly promulgating false conceptions concerning the higher education, of placing mental intoxication on the same plane with mental work, or of discrediting university training, either by unsuitable methods of popular instruction, or by appearing to give all of the university training in twelve easy evening lessons.

It has been assumed that there is a popular demand, active or latent, for highly specialized information fully up to date, and

such as it is alone the province of the specialist of the university to collect and promulgate.

Finally it has been assumed that as nothing save advantage can come to those seeking the special knowledge, whether for use or culture, so nothing save advantage can accrue to the university extension system or to the university itself from the adoption of a scheme of evening instruction fairly suited to the needs of the individual student.

M. B. SNYDER.

NOTES AND NEWS.

IT will interest cremationists to hear that the Japanese, who some time ago adopted burial of the dead, in imitation of European nations, have reverted, according to the *Indian Medical Gazette*, to their own custom of burning the dead on account of its sanitary recommendations.

— The death of Dr. F. C. Dietrich, keeper of the Botanical Museum at Berlin, is announced. He was eighty-six years of age.

— A despatch to the New York *Tribune*, from Franklin, Ind., Dec. 26, states that Professor Gorby, State Geologist, has given his collection to Franklin College. The collection consists of 40,000 to 60 000 specimens, gathered from almost every State in the Union, and from many foreign countries.

— At the Dec. 10 meeting of the Royal Society, according to *Nature*, the president read from the chair a letter from Professor Dewar, which had been put into his hand as he entered the meeting-room, in which Professor Dewar stated that he had at 3 P.M. that afternoon "placed a quantity of liquid oxygen in the state of rapid ebullition in air (and therefore at a temperature of — 181° C.) between the poles of the historic Faraday magnet in a cup-shaped piece of rock salt (which is not moistened by liquid oxygen and therefore keeps it in the spheroidal state)," and to his surprise, Professor Dewar saw the liquid oxygen, as soon as the magnet was stimulated, "suddenly leap up to the poles and remain there permanently attracted until it evaporated."

— The educated classes of Italy are delighted with the proposed changes at the ancient University of Bologna. The commission appointed by the Government to consider the advisability of making reforms in the old institution has recommended the adoption of the plans of Signor Buriani, the well-known engineer. The cost of the new buildings, which will be an ornament to the city, is estimated at 5,000,000 lire. The philosophical and legal faculties will be housed in future in the old "Archiginnasio," while the School of Mines will occupy the present university building on the Via Zamboni. The library united with the royal and city libraries will be placed in a new palace. Great improvements will be made also in the School of Medicine, which in recent years has suffered somewhat in reputation. The University of Bologna has as grand traditions as any university in the world, and college men in all countries feel an interest in its welfare. It is, in many ways, the mother of universities, and had centuries ago 12,000 students.

— Dr. Langer, says *The Medical Record*, has been investigating the subject of suicide among the soldiers in European armies, his statistics including the years from 1875 to 1887. The largest number of suicides occurred in the Austrian army, averaging 122 a year in each 10,000 soldiers. Next to Austria is Germany, which averaged 63 suicides to every 10,000 soldiers. In the Italian army on the average 40 soldiers in every 10,000 committed suicide every year. The French army from 1872 to 1889 lost in Europe 29 soldiers to every 10,000 annually, and in Algeria it lost just twice as many by suicide. In Belgium there occurred 21, in England 23, in Russia 20, and in Spain 14 to every 10,000. The cause of suicide in the army appears in most cases to be the fear of punishment, though not a few are driven to the act through aversion to military service and despair of ever being able to return to civil life.

— In a paper, read before the Sanitary Convention at Vicksburg, the proceedings of which are published, Dr. Baker of the Michigan State Board of Health gave official statistics and evidence which he summarized as follows: "The record of the great saving of human life and health in Michigan in recent years is one to which, it seems to me, the State and local boards of health in Michigan can justly 'point with pride.' It is a record of the saving of over one hundred lives per year from small-pox, four hundred lives per year saved from death by scarlet fever, and nearly six hundred lives per year saved from death by diphtheria — an aggregate of eleven hundred lives per year, or three lives per day saved from these three diseases. This is a record which we ask to have examined, and which we are willing to have compared with that of the man who 'made two blades of grass grow where only one grew before.'"

— A recent press dispatch states that Superintendent Johnson of the Deaf and Dumb Institute at Indianapolis has been making experiments with the phonograph, and believes that in connection with it he can teach the majority of the deaf-mutes under his charge to talk. He finds that the instrument concentrates the sound at the drum of the ear in such a way that many of the pupils otherwise deaf are enabled to hear. He intends to carry the experiments further, and thinks the phonograph may become a means of teaching the use of their voices to some mutes whose inability to speak is due to the fact that they have never heard speech. He tried the phonograph with 27 boys and 29 girls. Of these, only 3 girls were unable to hear something. Twenty boys and girls could hear instrumental music, while 11 boys and 15 girls could distinguish spoken words. Of the 56 whose hearing was tested, 28 could hear better with the left ear and 14 with the right, while 11 heard alike in both.

— It is much to be feared that, after all the stir which has been made about it, the Antarctic expedition which was to have been sent out next year, at the joint expense of the Australian colonies and Baron Oscar Dickson of Gothenburg, may have to be dropped owing to the supineness of the Australians. In July last it was announced that the Queensland Government was to place £2,000 in the colonial estimates as a contribution to the expedition. Sir Henry Parkes undertook to get £2,000 from New South Wales, while from Victoria a sum was expected commensurate with the importance of that colony. Sir Thomas Elder also promised £5,000 on certain conditions, while Baron Oscar Dickson undertook to give another £5,000, and, indeed, was quite prepared to spend double that amount to insure that the expedition should be a success. What with cash and promises, the sum of £14 000 seemed secure in July last, and it was confidently expected that £2,000 should be raised, so as to be well over the £15,000 which it was calculated the expedition would cost. Baron Nordenskjold was quite prepared to take charge of the expedition; and, as stated in the London *Times*. Baron Dickson had actually selected the two ships which he thought suitable for the work. Now we learn that the Queensland Parliament has refused to pass the vote of £2,000 which was placed upon the estimates. It is not only the direct loss of this subscription which is to be deplored, but it affects the other promises, which were made conditionally. Baron Dickson's offer of £5,000 lapses at the end of this month, and as he has had no information from Australia that the remainder of the £15,000 is secured, he has probably made up his mind that the whole scheme has fallen through, as did the similar proposal a few years ago. Indeed, it would seem as if Baron Dickson had not been treated with the courtesy which might have been expected. He had not been informed of the progress of matters in Australia, and has received no certain information as to the actual state of the movement. The fact is, the movement seemes to have been sadly mismanaged. No proper steps have been taken to enlist the sympathies and the active support of the public in Australia, where there is plenty of money to spare for purposes of this kind. True, one or two newspapers appear to have supported the proposal with some energy, but much more is wanted than that in Australia, where evidently the public is not too enthusiastic for the promotion of knowledge. The leaders of the movement on behalf of the proposed Antarctic expedition seem to have been a few members of learned societies, not quite in touch with the general public. The result is that the wealthy Australian colonies have been placed in the ridiculous position of having appealed to a small nation like Sweden for assistance, and in the end have