Advertiser 14/4/22.

UNIVERSITY SYLLABUS.

From "EXCELSIOR":—There is much truth and commonsense in the views of Mr. G. G. Newman regarding the changes in the University syllabus. However, as an optimist, I have every reason to believe that the motives of those in authority at our University are for progress and efficiency, and their efforts in that direction are certainly praiseworthy. There can be no effective reform without considerable innovations; yet while we look to the centre of thought to lead in the improvement of educational standards, we cannot afford to neglect the observation of defective means to that end as affecting the common weal. As far as my experiences have taught me, those defects may be briefly summarised as follows:—1. Excess of number of text-boks. 2. Insufficient reference in syllabus to guide, especially rural teachers and students. 3. Climatic control of mental powers versus amount of work set (December, January, and February do not permit intense expense for books many time discourages "concentrative, thorough methods," and favors "surface perusal" rather than profound reasoning and research. 5. Variance of theories in text-books, especially mathematics, and lack of information as to which is preferred or accepted in the light of modern science. 6. Difficulty in obtaining text-books at reasonable prices. (The expense for books many times discourages the brilliant student, who is thus handicapped by limited financial means.) 7. Prevention of the obtaining of certificate for passes (under four) in one year. 8. Lack of consideration for rural teachers and students (private and otherwise). I have before me a recent syllabus for the matric. examination of one of the leading colleges permitting entrance to the highest school of thought in Europe, and I am greatly impressed with the detailed, precise, and definite information and instructions given therein to their students (and coaches) regarding that examination. Let us hope that a continued democratic University spirit may prevail among those in authority, and that a modification of many recent resolutions may be reviewed in the light of possibility from the student's point of view on the one hand and the teachers on the other.

Advertiser. 19/4/22.

BIOLOGICAL SCIENCE.

THE INTERPRETATION OF LIFE.

The first of a series of lectures on "The Interpretation of Life" was delivered at the Prince of Wales Theatre (University of Adelaide) on Tuesday evening by Professor Brailsford Robertson. The building was crowded to overflowing, among those present being a large number of doctors, clergymen, and medical students. Many ladies were also among the audience.

Professor Robertson, who was warmly applauded on rising to speak, said a vast number of investigations were being carried on in all quarters of the globe by trained experts in every branch of biological science. The outcome of these researches included many things of value and interest to man, but what was interesting, above all, was the fundamental question—whither were all these discoveries tending? Did they collectively indicate that living organisms were, as people imagined themselves to be, free agents, acting on their own volition, or were they cunningly contrived machines operated by physical forces over which they had no control whatever? Three views had been put forward and upheld by different schools of investigators, now one and now another, from time to time, claiming the adherence of a majority of contemporary investigators. These views were, first, that of the Mechanists, who regarded life as the outcome of physical forces acting solely upon material bodies; secondly, there was the view propounded by the Vitalists, who held that in living organisms there resided a peculiar force, not represented in the world of non-living things, and which formed and governed the various manifestations of life. Yet a third school held that life might be affected by forces not residing in living matter itself, but wholly outside their physical world, as it was known at present. These were the Animists.

That evening, the lecturer proceeded, they would consider life from the standpoint of the Mechanists, and if it appeared to some that the spiritual and moral life of which they were conscious within themselves was by this analysis totally eliminated from the world of living beings, he asked them to reserve their judgment and form no decision until they had reached a point from which they could survey the phenomena as a whole. They would gain nothing by jumping to conclusions just because they were the conclusions they would prefer to be true. That did not make them true, nor did it alter the truth that would ultimately compel their recognition. It was better to face the facts bravely and, admitting them, build upon this secure foundation a higher superstructure of knowledge. (Applause.) They were, in truth, very much in the position of an intelligent ant, confronted with an electrically-operated player piano and settling himself to the task of interpreting it. His powers and experience were too slight to enable him immediately to comprehend it as a whole, nor would he ever attain to comprehension by merely formulating conjectures. Only by analysing all seen by him into its component parts, step by step, utilising one assured fact to assist in finding out a second, could he possibly penetrate behind the mere surface of the machine. Soon he would find comprehension dawning, and at the same time unsuspected mysteries unfolding before him. It was obvious that each stage of his investigation would reveal mechanism and yet more mechanism, yet the operating power, the electric current, would for long baffle his intelligence. Yet, even if he succeeded in penetrating to the power-house itself and comprehending all its varied machinery and appliances, he would still remain unaware of the yet more cunning mechanism of the brain of the composer, whose inspiration was the ultimate origin of all the movements and mechanisms which he had observed.

Professor Robertson demonstrated by an experiment that a purposeful act was not necessarily a conscious one. A decapitated frog was suspended, with its legs hanging downwards, and a small piece of blotting paper which had been dipped in dilute acetic acid was applied to the skin. After a brief delay the foot was raised and the offending object was accurately removed. The frog was decapitated, and they could not, he said, suppose it to have been conscious unless its consciousness resided in its spinal cord. But the consciousness of human beings did not reside in their spinal cord, because the slightest injury to their brains instantly deprived them of consciousness. Yet, as every surgeon knew, they could perform equally purposeful-seeming acts while profoundly unconscious, and anyone who had decapitated a fowl would have seen somewhat similar performances. Were these reflexes originally conscious acts, now become so habitual as to have dropped out of conscious life? What, then, was a habit? Were the acts of an animal, with all its senses and nervous centres intact, really the result of deliberation and volition? Most decidedly it could be affirmed that the great majority of them were not.

There was a certain class of reflexes which consisted of co-ordinated movements resulting in progression in a definite direction, towards or away from the source of a stimulus. These might be called directional reflexes, or, as they were more usually termed, tropisms. Responses of this character were widespread. Thus the sunflower turned towards the sun; the seedling bent towards the light. This was an example of heliotropism, or tropism directed by light. Some animals which had stems fixed at the base, like plants, displayed heliotropism similarly by bending. Others which were free-swimming displayed it by actual progression, towards the light if they were "positively heliotropic," and away from the light if they were "negatively heliotropic." Was this intelligent? It certainly seemed to be so in many instances. Thus many caterpillars were positively heliotropic when their intestines were empty, and negatively heliotropic when their intestines were full of food. The positive heliotropism of hungry caterpillars led them to climb the stems of plants till they reached the topmost twigs, where they were unable to proceed further, and regale themselves upon the youngest shoots and leaves. When filled with food they descended. Could anything be more expressive of intelligent purpose? It seemed almost impertinent to doubt it. But, nevertheless, let these clever caterpillars be put to the test, and it would be seen whether they realised all the consequences of their acts. A glass tube was arranged so that rays of light shone through it from a window at one end, and food was placed near the middle. Hungry caterpillars were now placed in the end of the tube, remote from the window. They hastened towards the light, trampled underfoot the tempting food which lay in their path, disdained it, and crawled to the extremity of the tube nearest the light, and if no food was placed there they would starve to death with abundance of food but a few inches behind them. How little we now thought of the intelligence of these creatures!

After detailing the results of a number of other interesting experiments with insects, the lecturer said the conclusion had been reached that even in their most complex activities the insects were automata. But, it would be argued, they should not proceed to infer because these simple organisms were automata, that therefore human beings were also automata. But the Mechanist had two replies to make to this. First, he pointed out, perfectly correctly, that the insects were not "simple" organisms at all, but, on the contrary, represented one of the topmost branches of the evolutionary tree. Their nervous system was highly complex. Their muscular system was the most highly perfected and elaborate known. Their sense organs were more diverse and no less elaborate than those of human beings. If such highly complex organisms were mere automata, responding like machines to stimuli of light, touch, heat, and so forth, might not human beings be equally automata? In the second place there were very many aspects of life in which human beings manifestly behaved like automata. The narrowing of their pupils when a flash of light fell upon them was not conscious. They were unaware of the separate contractions of their muscles, nicely adjusted to one another, which enabled them to walk or run. Their heart and alimentary canal were obviously automatic, they could not control them. Moreover, even in themselves, the same adjustment of tensions on opposite sides of the body obtained that they had seen in insects. If a man received an injury on the right side of the brain he fell or walked to the left, and he could not avoid this. If the injury was on the left side of the brain he fell or walked to the right. As would be shown in a later lecture, a relatively trivial injury to the brain converted a seemingly rational individual into a raving lunatic. So, said the Mechanist, all their actions depended upon the perfection of their nervous machinery, and as their machinery was constructed so would they behave. They felt that they were free agents only because the forces which impelled them were too many and complex for them to comprehend. (Applause.)

The second lecture of the series, on Tuesday next, will deal with the aspect of "Vitalism."

Advertiser 20/4/22.

UNIVERSITY SYLLABUS.

From "A VICTIM":—As a student for the senior examination, I have already gained passes in six subjects, but it is necessary for me still to pass in Latin. I am naturally good at mathematics, but have considerable difficulty in learning languages. I have been studying Latin for four years, and it is nothing to my discredit that I failed once in senior Latin. If I should happen to fail again, I look forward with feelings better felt than described, to what might be in store for me under the proposed altered syllabus. Speaking in the interests of those to whom languages present difficulties, I sincerely hope that the directors in this subject will make no further alterations, as I can assure them from my own personal experience that the standard seems to me quite good enough for the ordinary individual.

From "ABLATIVE ABSOLUTE":—As I am studying Latin grammar I know something of its difficulties and feel sure that it would take a person years to become a good Latin scholar. I cannot see how a school boy can possibly become well acquainted with 12 books in Latin classics in the limited time he has for this subject, especially when he is taking four or five others. I hope that the present very high senior standard will not be altered.

From "COMMONSENSE":—I feel it my duty to sound a warning note against overstraining the mental capacity of the rising generation. As one correspondent has remarked, study is a pleasure, but when overdone it is a crime. It may so happen that in trying to raise the mental efficiency of the students, especially the younger ones, the breaking point will be reached with disastrous results. The extreme efforts of many students to succeed under the greatest difficulties have been the cause of some becoming inmates of a mental hospital. I have started my studies late in life, and have a knowledge of the wonderful abilities of some of the young students, but there is a limit to mental as well as physical strength, and when the mental powers are abused the physical will suffer as well. There is also the financial side of the question, which must harass many self-sacrificing parents.

"EXCELSIOR" writes pointing out that owing to a printer's error, the list of defects he gave was mutilated. It should read as follows:—1. Excess of the number of text books. 2. Insufficient reference in syllabus to guide, especially rural teachers and students. 3. Climatic control of mental powers versus amount set. (December, January, February, for the most do not permit intense study). 4. Amount of work set discourages "concentrative, thorough methods and favors" surface perusal rather than profound reasoning and research. 5. Variance of theories in text books, especially mathematics, and lack of information as to which is preferred or accepted in the light of modern science. 6, 7, and 8, as printed.

From "CONSERVATIVE":—I fully agree with Mr. G. G. Newman. Imagine the amazement of both teacher and student (the latter more particularly) when they find themselves confronted with 12 different text books on Latin, the contents of which must be learned thoroughly. It is, in fact, monstrous on the part of those responsible for the regulations, as set down in the syllabus, for the forthcoming year. Does the professor at the head of these subjects at the University think that every student is a prodigy? The mental strain involved in mastering these books would be too much for the capacity of the ordinary school boy. Alteration is not always improvement, and in my opinion it would be better to leave things as they are.

Advertiser 20/4/22.

LIFE AND CONSCIOUSNESS.

THE MECHANISTIC INTERPRETATION.

"A Student of Philosophy" writes:—

In his most interesting exposition of the mechanistic interpretation of life, it seemed to me that Professor Brailsford Robertson failed to notice several positions which have established themselves since the days of Tyndall—positions which have made the theory acceptable to a much smaller proportion of scientists to-day than was the case then. For example, Professor Robertson dealt with his experiments as if there were only two accounts to be given of animal behaviour—the self-conscious adaptation to circumstances on the part of the free and conscious individual on the one hand, and pure mechanism on the other. Having proved that an animal whose behaviour appeared complex, accurate, and efficient for the maintenance of its life, did not possess the power to deal with certain accidents, which would have demanded a completely novel kind of action, he seemed to imply that the activity of the animal was proved to be mechanical. But between the two intervenes the vast range of mental life which we call the subconscious, about whose existence there is now no doubt; a region which does perhaps 90 per cent. of the back work for consciousness, just as the artisan carpet-weaver does a vast proportion of the work of making carpets for the designer. Once consciousness has mastered a certain process, such as walking, it can hand over this function to the sub-conscious. It has not ceased to be mental activity. It is sub-conscious, but rises to the conscious level should any change be required in the rate of walking, or any obstacle such as a blistered heel require to be overcome.

Consciousness can economise by reducing certain forms of behaviour to habit. A man who has decided several times to clean his teeth before going to bed, finds it soon requires little conscious effort to decide to do so; in fact, it would require a much more marked and severe exertion of conscious energy not to do so; and the breaking of the habit would cause a sense of discomfort, uneasiness, and frustration somewhat akin to the insect's bafflement at having his accustomed activities disturbed. But man's self-consciousness enables him to detach himself from the control of the subconscious. This is mechanical only in a metaphorical sense, in so far as conscious purpose has committed to it some function it has mastered, as walking, or doing up buttons, or in so far as it represents the mental life accompanying some instinct which does not require conscious control, as breathing. But breathing can come under the control of consciousness when necessary. The two are in the same plane. Mechanism could not appeal like that. The subconscious arises to the level of consciousness in emergency at the stage where there exists self-consciousness to appeal to. But a strict mechanical explanation of consciousness would explain all activity within the limits of the theory of the conservation of energy. Any change in an animal's behaviour would be due to a new physical stimulus, and the new line of conduct would be that stimulus passing into forms of energy equivalent in amount to the stimulus. Can this test be applied to the change in an animal's conduct caused by a change in the direction of light rays? Where does the amount of stimulus come from necessary to pass into the equivalent physical muscular energy to move the body of the animal? Then, it seems to me, that Professor Robertson scarcely noted the modern conception of consciousness, not as seated above, separate from, and apart from mechanism and physical ener—, but as in some sense imanent in the physical. The old naive