

Mail 15/4/22

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SCIENTIFIC EXPERIMENTS.

This large community of snowy quadrupeds is the property of Professor Brailsford Robertson, who is the lecturer on bio-chemistry at the University, and the little animals live, move, and have their being in a big laboratory in the Darling Building. The problem of malignant growths, such as cancer, has exercised the minds of scientists for aeons, and every generation brings with it one or more imaginative, and at the same time practical minds, which bring the weight of their scientific knowledge to bear in the form of experiments for the treatment and—it is to be earnestly hoped—the subsequent cure of the scourge. The professor and his assistant, Mr. Ray, are doing a work of inestimable value in their laboratory, and even if we in our time do not see the full fruition of their efforts, here is no denying the importance of their labours in the cause of science and for the benefit of suffering humanity.

IN THE LABORATORY.

Mr. Ray met us and conducted us to the laboratory, where an extraordinary sight met our eyes. Scores of little cages were arranged neatly on long tables, in each of which were two or three white mice—seemingly happy, although many of them had internal growths which were a bar to their complete health. They are given different kinds of food, and weighed at stated intervals, and the variation in weight is an indication of the effect on the mice of a particular class of food. My knowledge of science is not great enough to go into technical details, but even in my ignorance I can appreciate the enormous value of these experiments.

THE NURSERY.

There are mice of all ages and sizes, and the nursery consists of earthenware jars, all numbered and covered with gauze. Mr. Ray took down, say, No. 154, lifted the gauze covering, and showed us a mother mouse with four dear little fluffy white babies. I asked their ages, and was told, "Six weeks!" "Show me some younger ones." Jar No. 87 was uncovered, disclosing a mother and three smaller babies, not so fluffy as the previous ones, and far less attractive. These were only a few weeks old, so I thought I could stand the sight of some even more juvenile mites. Jar No. 264—these numbers are all hypothetical—opened to reveal seven bright pink atoms without a vestige of fur—six days old—so I cried out hurriedly, "That will do, thank you. Don't show me any younger ones!" I just couldn't have borne it, and as it is I feel that I can never look a mouse in the face again. Two beautiful big white rabbits—also for experimental purposes—watch the proceedings lazily from their own big cage, and I could not help drawing a mental picture of the scene if two large tomcats were invited into the laboratory! Let me draw a veil over it!

Advertiser 3/6/22

SHOULD A LAWYER TELL?

His Honor Mr. Justice Angas Parsons, during the hearing of a case in the Civil Court on Friday, stated that he had for years been looking for an exposition of what the true principles were in the event of an advocate knowing of a case which had been decided against him on a point he was arguing, and which he had reason to believe was not known to the other side. He had just discovered a series of articles entitled "The Seven Lamps of Advocacy," in "Chambers' Journal," written by the well-known English county judge, Mr. Justice Parry, in the course of which that authority remarked:—"The best advocates of all generations have been devotees of honesty. Abraham Lincoln founded his fame and success in the profession on what some called 'perverse honesty.' On his appearance in the Supreme Court of Illinois he addressed the court as follows:—"This is the first case I have ever had in this court, and I have therefore examined it with great care. As the court will perceive by looking at the abstract of the record, the only question in the case is one of authority. I have not been able to find any authority to sustain my side of the case, but I have found several cases directly in point on the other side. I will now give those authorities to the court and then submit the case." There have been advocates who regard such a course as Quixotic. Mr. Joshua Williams gave it as his opinion that the question of the

A MUNICIPAL THEATRE.

It is proposed that the question of the... will be a feature of the family circle. Less than £100,000. The proposed tip seats 50,000 people, and that it will cost not from Castleburgh-street, that it will hold main entrance to the new theatre will be for £124,000. It is understood the... Ltd. was sold to David ones Proprietary, it was sold to David ones Proprietary, making a total of £124,000. In 1920, the property, with another price paid was £100,000. In 1920.

STREET MUSIC.

From "STUDENT"—I agree with "W.J.S." when he states that perhaps one of the world's greatest needs at the present time is music. Your correspondent suggests that instead of hearing good music in a concert hall, where one is able to sit back and hear the beautiful strains of compositions by wonderful old masters, we should hear "just ordinary" music played by violinists, &c., in our busy streets. I ask "W.J.S." would it not be better to hear good music in a concert hall, as for instance, the South Australian Orchestra on June 8 (when about 400 tickets at 1/ were available, also 3/, and 5/ tickets), than to hear, or endeavor to hear, music played in the streets, to the accompaniment of motor horns and clanging tram gongs, where people rush past one, and newspaper boys disturb the atmosphere with their cries? If "W.J.S." would like to hear good music, I advise him to pay the small sum of 1/ and attend the next concert of the South Australian Orchestra, or any of the Conservatorium concerts. If our friend had attended last Monday's Conservatorium concert, he would not talk about street musicians. I would like to point out that these concerts are not open for the "select brilliant few" only, but open for all music lovers.

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STREET MUSIC.

From "STREET ORCHESTRA."—Arguments of the kind contained in "Student's" letter serve in no way to contravene my expressed idea. I have not intimated a preference for street music over that of the higher class, neither have I intimated disparagement of the latter. "Student" objects to street music on account of "clanging gongs," "motor horns," "news-boys' incessant cries, &c.," but, let me inform him that all sound, harsh, discordant, and otherwise, can, if rightly placed, be converted into music. Harmony is much what one makes it. While the tired citizen often desires the outback solitude, the hushman not infrequently yearns for city din. If the city is a noisy place, which undoubtedly it is, we have all the more reason for desiring street music; so that its mellowing influence may serve as a go-between to vary, if not lessen, the grating harshness. The fact that "lovers of music" can attend some harmonious treat, where they can "sit at ease and complacently listen to the compositions of old masters," does not affect the question, inasmuch as it is a thing apart. The individual who sets out at the end of the day to attend some special musicale is not in any way to be considered in the same light as the daily throng parading the street. Like many other things in this world, just at the time when wanted most, music is not to be had. It is not everybody who can be a genius, but almost everyone is a lover of music, and as music is one of God's provinces, it should be freely dispensed to all. "Student" says that if I had attended a recent entertainment, I would not talk of street musicians. The street musicians referred to in my previous letter played "the old masters," and played them well. As a kindly retort to "Student's" contemptuous remark, let me say there is room for a great composer to figure as a leading director of a by no means insignificant "street orchestra."

Advertiser 21/7/22

ANTHROPOLOGY.

NEED FOR CHAIR AT ADELAIDE UNIVERSITY.

"Anthropology, Mother of the Muses," was the title of an interesting and instructive address given by Professor Darnley Naylor, in the Public Library Lecture Room, Institute Building, North terrace, on Thursday evening. The function was given under the auspices of the British Science Guild. Professor Brailsford Robertson presided over a large attendance. The Chairman said there were many problems of vital interest which the guild proposed to bring before the public in the form of lectures, from time to time. —Light on Modern Problems.— The lecturer pointed out that anthropology in its widest sense had covered all that was known of mankind throughout the ages. It did not merely form the basis upon which all their knowledge rested, but was all their knowledge. Greece and Rome were more than pioneers; they had made roads of knowledge along which all of them to-day must travel, even though they used the motor car for the purpose. A classical professor must acknowledge with gratitude the gift of light which anthropology had shed over the dark spots in his own department. The names of Sir James Frazer, Mr. A. B. Cook, and Dr. Farnell showed the close connection between anthropology and the classics. The lecturer then proceeded to

deal with two divisions of anthropology, known as ethnology and comparative philology. Those two, he said, could throw much light upon modern problems. They explained, for instance, why Finland and Lithuania had parted from Russia in 1917. They explained the disturbance in East Karelia, and the hatred of the Lithuanians for the Poles. Indeed, no man could call himself a statesman who was ignorant of those two subjects. Professor Naylor, continuing, referred to the value of ethnology in interpreting the literature and history of Greece, Rome, and medievalism. He described the physical appearance of Julius Caesar and his successors, showing how the former displayed mixture of race, and how the latter were apparently more and more Nordic. Alexander the Great, he said, had shown his mixed race in an almost ostentatious fashion by having one eye blue and the other a deep black.

The speaker referred to the important work which he said Australia was doing in Papua, and should be doing in the new mandated territories. Judge Murray, in a recent article, had emphasized the value of the knowledge of anthropology in administration, but those territories were held not only in trust for humanity, but also in trust for science. They had nearly missed their opportunity among the native Australians; they missed it entirely in Tasmania, and if they did no better in the Bismark Archipelago they would earn the contempt of posterity. That was why the lecturer so earnestly advocated the establishment of a chair of anthropology in the Adelaide University. It was necessary to train a body of men possessing qualifications worthy of the great civil service; and why should not those men be trained here rather than in Europe? The whole of their Pacific possessions formed an invaluable laboratory for anthropological investigation, and obviously the nearer the student was to those territories the better his chance of receiving effective education. But there was a decency in things. The pioneer work in Australian anthropology was intimately associated with the names of Gillen and Stirling. Both have lived in this State. The latter won for himself and his University a European reputation; he was an honoured member of an honourable profession, and as a legislator "did the State some service." It would be little to the credit of South Australia if they did not honour the name of so distinguished a citizen by founding a chair of anthropology instead of leaving the task to Sydney or Melbourne.

Professor Naylor was heartily thanked by the Chairman in behalf of those present for his address. The Chairman remarked that there were only two anthropological chairs in the British Empire, although Englishmen were the leading investigators of anthropology in the world. Germany, which had had only a few colonies, had a chair of anthropology in every university, and America, whose principal possession was the Philippines, was swarming with anthropologists.

Advertiser 26/7/22

THE INTERPRETATION OF LIFE.

LECTURE BY PROFESSOR ROBERTSON.

The second of a series of three lectures on "The Interpretation of Life" was delivered by Professor Brailsford Robertson, at the Prince of Wales Theatre, University, on Tuesday evening, before an interested audience. The lecturer dealt with the theory of vitalism, which, although in high favor with biologists fifteen or twenty years ago, is now little regarded.

Professor Robertson said the notion that living organisms, although machines, generated some peculiar form of force, originating solely in living matter and exercising a formative and governing influence over organisms, was put forward in very remote antiquity. It was adopted by Aristotle, and in the seventeenth century was greatly extended and popularised by the German philosopher and mathematician, Leibnitz. The discovery of Lavoisier, confirmed with progressively increasing accuracy by each succeeding generation of investigators, that all the energy produced in the living body was derived from the burning of foodstuffs, as the energy of an engine was derived from the burning of fuel, greatly discouraged the vitalists and the theory was almost totally abandoned, when, towards the end of last century, it received a curious revival at the hands of the German zoologist, Driesch. Fertilisation, which in the sexual forms of life was the normal beginning of development, consisted essentially in the union and fusion of two cells. But in any case, whether fertilisation occurred naturally or by artificial means, or was apparently dispensed with altogether,

the beginning of life in all the forms which ultimately consisted of many cells was a single cell, the egg cell or ovum. In the beginning we were all undistinguished droplets of protoplasm and the ultimate origin of Shakespeare could have differed in no fashion at present perceptible from the protoplasmic droplet that gave rise to a rat.

After fertilisation, said the lecturer, this simple looking fragment of jelly divided into two seemingly similar fragments, these again into two, and thus they got the two, four, eight, sixteen, and thirty-two cell stages in the development of the embryo. The arrangement of these cells, the way they were packed together, was in no way peculiar or incomprehensible. A mass of soap bubbles would arrange themselves in precisely similar figures and the mathematician and the physicist said these figures resulted from the operations of the familiar physical force of surface-tension. Ultimately they reached a mass of cells, the morula or mulberry-like stage of development, and then these cells arranged themselves into the form of a hollow sphere, like a tennis ball, the cells forming the wall of the sphere. Now, how could development proceed? Should the hollow sphere simply get larger and larger, and should people all become hollow globes? Some simple organisms did stay at this stage of development all their lives. Others developed further. How could this be accomplished? If some of the cells on the sphere multiplied faster than others one of two things must happen. The sphere must bulge at that point, or it must invaginate. To illustrate what was meant by invagination, one should imagine the thumb thrust into the wall of a leaky tennis ball and then they had an image of what occurred. The sphere folded inwards and the enclosed fold formed the Archenteron or primitive digestive cavity. After this a series of events occurred of which the physical origin was not so simple, but their result was gradually to unfold the varied structures of the organism in orderly and systematic progression. They could now understand the full purpose and meaning of the experiment of Driesch. If all this orderly progression of development were due to purely physical mechanisms, what would happen if they interrupted it? Surely everything would be thrown out of gear and development be hopelessly confused? Driesch cut the embryo of a sea-urchin in half at the stage of the hollow sphere. Each half gave rise to a complete animal. This result was so astounding that for a time it appeared to have deprived many biologists of their critical faculty. How was it conceivable that a mechanism capable of unfolding such elaborate structures, so faultlessly designed, would not be disturbed by such a brutal interruption? They could even go further and shake apart the two first division cells. Each would give rise to a complete embryo. In consequence of such experiments as these a notable trend of biological opinion towards vitalism occurred in the early years of this century. The vital force, called vital or entelechy, as Driesch called it, adopting a term due to Aristotle, was subsequently made universal in the eloquent thesis of the French philosopher, Bergson. This was the high-water mark of vitalism, and the tide had been receding ever since. There was one curious limitation to the power of the egg cell to withstand mutilation, and that was the necessity of the presence of a nucleus. Herein, as they knew now, lay the key to the mechanistic solution of the riddle.

Still more curious potentialities and limitations had been observed. Thus if the eye of a crab were removed a new eye grew on the mutilated stalk, but if the optic ganglion which lay below were also removed, not an eye, but an antennae grew on the mutilated stalk. The powers of this hypothetical formative force, therefore, depended upon the integrity of certain structures. In humans the limitations were even more painfully evident. They could not regenerate a limb or an eye, but they could regenerate over a third of their liver cells when these had been destroyed by an overdose of certain poisons. Even in such a lowly form as the sea-urchin the power of the embryo to replace parts lost by mutilation was not unlimited.

They must now return to the question of what actually occurred in cell division. Examination of the nucleus of a dividing cell under the highest powers of the microscope revealed a strange phenomenon. The nucleus now resembled a skein of tangled threads being unravelled. Some of the threads wandered to one end or pole of the nucleus, others to the opposite pole. Then the nucleus divided, each half containing its own quota of the threads. Subsequently the cell divided, each of the daughter cells containing one of the nuclei. An elaborate sorting out of these thread-like elements or chromosomes was evidently an essential preliminary to the division of the cell. Sixty years ago it was pointed out by Gregor Mendel, Abbot