

REVERSAL TO BARBARISM.

EUGENICS AND CIVILISATION

The danger of over population in the world was referred to by Professor Agar, in a lecture delivered under the auspices of the Victoria League on Friday.

Mr. Russell Booth presided at a meeting of the Victoria League at the Institute Building, North-terrace, on Friday evening, when Professor Agar, of Melbourne, delivered an address on eugenics and civilisation. The lecturer said the study of human material was a fascinating biological problem. There were two fundamental differences of organism, those which were innate or germinal, and those which were caused by environment. They were known as innate and acquired characteristics or differences. The age-old argument of heredity versus environment would never get them anywhere, because the problem had been wrongly formulated. The proper classification and discussion of the differences thus evolved was a different matter. The experiments of Professor Karl Pearson had shown that as regarded stature, heredity was relatively eight times more important than environment, although it was evident that whereas the tallest parents had the tallest children, there was a distinct tendency to a rise in stature as wages increased. According to most biologists, the differences due to environment could not be inherited, and even the minority would allow that they could only be inherited in a slight degree. Where one parent was insane, statistics showed that 25 per cent. of the offspring were insane, and if a proper record were possible, it would almost certainly prove that all the children would be insane when both parents were. The term feeble-minded was a wide classification which included idiots, whose mental age, no matter what their physical growth might be, would not exceed two years, imbeciles who were mentally three to seven years old and morons who ranged from eight to twelve years. When both parents were feeble-minded all the progeny would probably be the same, and where one was the percentage would be about 50. Where both parents were normal, but of tainted stock, there would be a big proportion of feeble-minded children. All these things were part of the problem confronting the eugenicist. One question which was asked on all sides was "Could degrees of normal intelligence be inherited?" There was a great deal in favor of such a theory.

Longevity Inherited.

With regard to general health the age at death was a fair general proof of constitution. In this regard the records of the Quaker families of England had been of remarkable value, for they all came from people of good environment. Where the fathers had died early, nearly half their daughters had died under the age of six, and as the age of death rose to 84 the death rate in infancy had correspondingly decreased to less than one-fifth. That would go to prove that the constitutional factor of longevity was definitely inherited. Social status was inversely correlated with infertility. The birth-rate in England was highest among coalminers, with dock laborers next, and agricultural and shipyard laborers in that order. Amongst the professional classes the highest birth-rate was that of the doctors, Church of England clergymen, solicitors, and teachers, in similar order. They might ask what relation there was between ability and social status. It was believed by some that there was a correlation between the two. Superior intelligence might be said to be five times as common among men of superior social status as amongst their inferiors. The fertility rate of wealthy classes had tended to decrease during the last hundred years. The result was that the working-class, while presenting a vast reservoir of ability, was continually drained of its ablest men who were placed in a new status where fertility was low. The birthrate among the subnormal population presented another problem for, amongst a picked group of feeble-minded women, the average had been seven children. Amongst inebriates (a picked group), two women had had 14 children, five women 13, one woman 11, and two women 10. The lack of check upon the multiplication of the unfit was a bad thing. Good environment was of the utmost importance to individuals, but was really only of minor importance to the race.

Effects of Alcohol.

Regarding alcohol, it had been shown there was a high rate of mortality among the offspring of guinea pigs which had been treated with alcohol, but it should be remembered that in the human race alcoholism was frequently a symptom of feeble-mindedness. The vast difference which could be caused by selective mating would be understood when it was remembered that the stature of the race could be increased or decreased, and, simi-

larly, it was probable that a fever or imbecility or brilliancy could also be reached. In Australia 11 per cent. of the last generation had been responsible for the production of about 50 per cent. of the population, and it would be seen what an effect that must have had upon the race, upon whom their hereditary characteristics had inevitably been impressed. He did not believe that continual progress would necessarily result from civilisation. Past history showed that intelligence, self-reliance, and high social value had also been of high survival value. The intelligent and self-reliant people, however, continually died off, leaving less people of their calibre. In the white race a reverse of evolution had occurred to some extent, but a return to barbarism would mean a re-emergence of those high qualities. According to Flinders Petrie, eight civilisations could be traced in Egypt, with a period of barbarism between each. With regard to the present civilisation, they had to ask whether the gregarious or social instincts of man were well enough developed as yet to allow him to live in cities of to-day or the near future or if he would be prepared to sacrifice his ego for the subordination to authority present in the ant communities. This was a very real problem, for although a rapid increase of population was necessary in Australia, at the present rate of reproduction an increase of the inhabitants of the world, the limit of the earth's supporting powers might be reached in a century. Long before that the pressure would become very great. They would have to consider whether the present civilisation could continue at all or whether it would have to change radically. Under the present system, their best people did not reproduce themselves in anything like the same proportion as the others. Compulsory sterilisation of a certain class of mental defectives had been practised in America for many years. Apart from the Anglo-Saxon repugnance to such a course, the real danger did not arise from these people, but from the lower grades of the normal population. With wider knowledge of birth control the difference in the birth rate between the two great classes, the brilliant and the dull, might become less. The education of public opinion was part of the duty of the biologist, and even that could scarcely check the onward march of events in the light of what had been learned of other great civilisations.

menters, theorists, whose mission it is to "extend the bounds of knowledge." As the sides of the depression converge towards the centre, however, the labourers become fewer, the task more strenuous, and the results less obvious; until, at last, in the bottom, there are the real pioneers of science, the giants who hew the living rock in search of the very root of truth—the basic how and why of all things. It is these men who tell of the essential unity of the material world, and whose delving at the source of existence, animate and inanimate, may yet reveal an all-inclusive, universal oneness, a fusion, as it were, of the concrete and the abstract, which transcends the power of thought.

No mere layman may hope to judge of the full significance of the puzzling theory of atomic structure; but this wonderful scientific conception of the common basis of all being may at least be accepted as suggestive of the actual unity of science itself. A like aim, the promotion of good through the increase of knowledge, must necessarily animate all true scientists, although the extraordinary diversity of fast-multiplying lines of enquiry sometimes makes it difficult to realize that these lines do tend infallibly to converge. The botanist bending over a flower, and the astronomer gazing into the infinite, do not appear to be fulfilling consonant purposes; but they are doing so, nevertheless, even as surely as the zoologist and the geologist pursue an identical ideal by different means. The belief that they are all dealing with the same material in its varying forms, must tend to bring all scientific workers still closer together. And yet, if the characteristic material and ultimate object of each scientific group were as different as chalk has hitherto been believed to be distinct from cheese, there is the quality of inter-dependence to compel their practical unity. There is no competent experimenter whose line of investigation does not hold out a possibility of benefit to some other worker in a seemingly unrelated field of research. In this fact lies the supreme value of such conferences as that which will begin in Adelaide to-day. The distinguished gathering which will attend the civic reception at the Adelaide Town Hall will proclaim, not only the catholicity of science, but the possibility of its consolidation on the principle of "each for all and all for each."

The Australasian Association for the Advancement of Science has as its primary aim "the extension of the usefulness of science, both in promoting the material and the social welfare of mankind." How much this comprehends will be clear only to those who realize how utterly dependent upon science modern civilization really is, and how largely the future of the world is committed to the care of the "wise men who lay up knowledge." There are still the theoretical disciples of the simple life, who deplore the elaboration of living which has kept pace with scientific development, and who believe, or assert, among other things, that, if no one had ever invented a head covering, there would be no present need for an infallible hair restorer. It is over-late to involve oneself in a controversy of that kind; the world we live in is already far too complex to make it possible to reverse the order of progress. Science has brought us to a stage in the scale of social evolution at which we cannot be wholly abandoned to Nature without disaster; and, moreover, the scientist encourages mankind—even more by his achievements than by his words, which are generally sparing—to look forward to an incomparably and brighter future. The retrospect gives to the prospect an almost dazzling radiance. A hundred years ago, 50 years ago, the forward march of science was

so deliberate that its promises seemed only for posterity; but now, each revolutionary discovery follows so rapidly upon the last, that no man can tell how soon the scientist will offer to him personally some new thing to enrich his life—perhaps to save it. If only from the least exalted motive of self-interest, therefore, all the people of South Australia may join in extending to their distinguished visitors the very heartiest welcome.

PUBLIC HEALTH.

The Health Association is a body relatively small in numbers, but strong in the enlightened enthusiasm of its members, and likely to become increasingly potent in the development of a national conscience on the subject of public health. During its annual conference, held concurrently with Science Week, much will be heard of disease prevention and allied problems. The association realizes that the knowledge gained by modern scientific enquiry into questions of health and disease has not been fully applied for the benefit of the people, in the direction of preventive medicine. It realizes, too, that the people, through lack of education on health subjects, have been slow to co-operate in the safeguarding and maintenance of their own health; and this disability the association is anxious to remove by the dissemination of information as to the means by which disease germs are spread and by which they may be avoided. Sir James Barrett, that versatile humanitarian, showed an audience on Saturday evening how the cinema film may be enlisted in the cause of health instruction; and his observations suggested that Australians for all their claims to be an "advanced" nation, and for all their fortunate environment, have much to learn from America and other countries in the matter of health organization and education. As a people we are far too ignorant or tolerant of the baneful activities of flies, rats, and other filth-carriers, disease-conveyors, and food-consumers, which levy a heavy toll upon the well-being of the community. Scientific research into the causes and transmission of disease has shown that cleanliness—including in that term the banishing of contaminating pests—is not only next to godliness, but is essential to the preservation of health and life.

Modern medical science regards the health of the people as a personal and national asset, to be jealously and consistently cherished. It seeks to act vigorously on the old adage that prevention is better than cure, and certainly less costly to the individual and the nation. Who can estimate the total of misery and debility, not to speak of the economic losses, caused by the common infectious ailments which ravage the community with no other hindrance than the curative attentions of the family physician, but the spread of which could be largely checked by a properly organized system of public health? If opportunities for prevention exist in relation to the minor maladies, still greater avenues of service are presented by the devastating diseases which annually take heavy toll of human life. The "red plague," for example, is pre-eminently a disease which calls for an active campaign of prevention. Optimists may regard Sir James Barrett as something of an alarmist on this subject, but it is better that a little more rather than a little less than the truth should be told about the ravages of a frightful disorder, in order that the necessity for action may be impressed upon both the authorities and the general public. What is South Australia doing to lessen the incidence of venereal disease? Dr. F. S. Hone, the energetic President, in a recent address

The Register.

ADELAIDE:
MONDAY, AUGUST 25, 1924.

SCIENTIFIC UNITY.

Science teaches us that, in fundamentals, the distinctions between ships and shoes and sealing wax are more apparent than real. Sir Ernest Rutherford, the greatest living authority on the elemental properties of matter, again declared most positively, at the Toronto Conference of the British Association for the Advancement of Science a fortnight ago, that every tangible thing is formed of the same substance as every other tangible thing, and that, physically, they differ only in accordance with the relationships between the core and electrons of the atoms of which they are composed. If the atom were the size of a house, he said, the research worker would find at its centre a core of the size of a man's fist, and that core controlled the arrangement of the whole. The small particles going to make up the core are disposed in different ways, and, in the words of Sir Ernest himself, "the key to the whole of science lies hidden in the arrangement of this minute core of each atom." Figuratively, science is not infrequently represented as an elaborate building, rising stone on stone towards the heights of the ultimate perfection of human knowledge. In an important particular, the picture is misleading. Science is rather a huge excavation, beginning in the loose surface soil of the relatively obvious, but, as it goes deeper, passing through strata of ever-increasing hardness. On and near the surface, the circumference of the pit grows rapidly in response to the efforts of a countless number of workers—explorers, investigators, expe-