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SELECTION APPLIED TO MAN.

The population of our globe is now about fifteen hundred millions, or about an average of thirty to the square mile of land surface. With proper cultivation of both land and water, and the largest possible reclamation of waste and desert land by irrigation and otherwise, the earth is capable of supporting perhaps ten times as many people: probably not more, as that would require every inch of dry land to be as densely populated as China now is, and a very considerable portion of the earth's land surface is and must ever remain practically uninhabitable.

Assuming such an increase of the world's population to be possible, the question naturally arises: When is the limit likely to be reached—and what then? The contingency may seem at first sight to be very remote, but in reality it is not, provided human progress continues at the present rate. The dominant race of to-day is that which is fairly represented by the people of England. The influences of modern civilization have been felt on that island as manifestly as anywhere; and we shall not go far wrong if we estimate the progress of the immediate future by the ratio of the immediate past. The population of England at the beginning of the present century was, in round numbers, a little under 9,000,000. It is now not far from 24,000,000. With the same rate of increase for seven generations more, the English people will equal in number the present population of the entire globe! At the end of the fifteenth generation the descendants of the English people, if they continue to increase at their present rate, will number (if statistics and mathematics tell no lies) fifteen times as many as the world now supports, and fifty per cent more than we have set as the limit of the earth's possible population. Inasmuch as the English are not the only people that are rapidly increasing in numbers, it is clear that the struggle for existence among the tribes of humanity is likely to be rapidly and seriously intensified.

Thanks to the advancement of knowledge, scientific and sanitary, the physical conditions of life are becoming more and more favorable; the average duration of human life is increasing, and the plagues and fevers that formerly scourged the world and kept the population low are being brought under control, if not entirely stamped out. The tendency of civilization is toward arbitration instead of war, and so that means of keeping down the number of the human swarms is likely to be lessened rather than increased; and the same may be said of the increasing abolition of personal strife and individual murder. The means so frequently resorted to by crowded peoples heretofore to keep the natural increase within bounds—the general destructions of infants—grows more and more abhorrent to human instincts, and is not likely to be revived: certainly not by people of the higher types that are destined to inherit the earth. The multiplication of facilities for transporting food, incident to modern civilization, with its improved agriculture, combine to make the famines once so frequent and destructive of life more and more rare, and more impossible. The great scourges of humanity—pestilence, famine, war, and murder, domestic and social—are thus clearly on the wane; and as no substitution for them can be foreseen, there is no reason to infer that the present rapid increase in the earth's population is likely to be stayed by natural means. Such being the case, the earth's sustaining capacity will be reached before the race is many centuries older.

What then? Will the fittest survive? If natural selection were the law with man as with brute nature, that would most probably be the result; but it is not. That is, not wholly. Under the influence of charity and other religious sentiments, it is usually the weakest, often the worst, that is most favored in the struggle for existence. The burdens of social and political life fall chiefly upon the worthy, who have to support not only themselves and their own offspring, but the idle and the vicious and their multitudinous spawn. The artificial selection which religions, governments, and societies chiefly foster tells steadily against the best. The sense of responsibility which the struggle for existence creates in the minds of the thoughtful tends in the same direction, in putting a check upon the natural increase of the higher orders of humanity; while the heedless animalism of the unthinking and the vicious, on the contrary, leaves them free to multiply without stint, and the superior life-power of the higher is no match in the long run for the unrestricted fertility of the lower. Our civilization, like all those which have preceded it, thus carries in itself the elements of its own ultimate destruction: or, at the least, elements which make its overthrow possible at any moment, by causing the lower grades of culture to preponderate in numbers and political power. This, of course, on condition that human societies continue through future ages to be regulated by the social laws which now prevail: a condition which, we are happy to believe, must sooner or later cease to hold. The danger is too serious, and the enlightening influence of Science too persuasive. Already there is a growing disposition on the part of intelligent lovers of humanity to break away from the unscientific customs that have come down to us from barbaric ancestors; and the instinct of race-preservation will compel a radical change in many of them, particularly those which determine our treatment of the physically and morally tainted. Preventive measures are rising more and more above those that are palliative and remediable; charity is becoming broader and more far seeing; the rights of future generations begin to weigh against the privileges of the present; and there is infinite promise of good in the change.

It would be sheer presumption and foolishness to predict

specifically the issues of conditions so complicated as those of existing humanity; but having in view the intensifying struggle for existence in store for future generations, and knowing the immense advantage which a pure and high race must always have over lower races, it is safe enough to predict that the ultimate dominion of the world will rest with that people, whether black, yellow, or white, which will so shape its political and social system as to rigidly favor the perpetuation of its best—which will studiously eliminate every serious moral or physical taint from its life-stem. As all cannot survive, it is becoming more and more the duty of humanity to elect wisely which shall survive, the good or the bad: or more correctly, perhaps, whether the chances of any unborn generation are in favor of physical and moral health, or the contrary. To favor the former does not imply or necessitate the destruction of any life; but it does necessitate such an interference with individual liberty as shall restrain the vicious and the diseased from being over-represented in generations to be; and the time may come when it will be vitally necessary to prevent such debasing elements from being represented at all. At any rate, it is clear that, whatever high-grade people first rises to the moral level of applying a proper system of artificial selection to humanity, and steadily purifies its stock by eliminating vitiating strains, criminal or otherwise, that people will lead the world in civilization and power. It will do more: it will retain that leadership, and develop a type of humanity which will endure and improve as long as the earth remains habitable. All others contain the seeds of their own destruction.

EXPLOSION OF KEROSENE LAMPS.

A correspondent writes as follows:

"A few evenings ago, a lamp burning in my kitchen suddenly went to pieces; the oil at once blazed up and ran off the table in a burning stream, setting fire to the floor. The oil blazed up two or three feet high, and but for prompt attention the results would have been serious. The lamp was of glass, of the flat form, said to be the best; the oil vessel would hold half or three quarters of a pint; the wick was long enough to reach the bottom. The flame was turned rather low, but by no means as low as possible, and the lamp had been burning the greater part of two evenings since it had been filled, so that it could not have been too full. It was not exposed to a draft and could not have been upset or shaken; no one had been in the room for at least half an hour previously. The oil was claimed to be able to stand 150° fire test; and immediately after the accident some of the oil was tried with a lighted match, but it would not burn. The explosion did not throw any pieces of the lamp more than a few inches, and the oil was not scattered at all; the noise was so slight that, when heard in an adjoining room, it was supposed that the chimney had broken and fallen off. Question 1. Why did the oil that ran from the lamp burn as freely as turpentine, while the oil poured from the can would not burn at all? 2. Is any kind of kerosene oil safe, and (3) if so, how can the consumer test it?"

As this subject involves the protection of life and property, and as similar instances have lately become common, we think it of primary importance that the causes of such accidents should be well known, and that some prevailing errors should be corrected, as they lead to precisely such catastrophes as the one in question. But our correspondent was more fortunate than one acquaintance of ours, who, coming home late in the evening, found his house entirely burnt down, the only possible cause being that a servant had left a kerosene lamp, partially burnt out, alight in her room, and as the flame burned down an explosion doubtless followed, spread the oil, and set the house in flames.

Our correspondent's accident illustrates the following popular errors: 1. He states that the lamp was of the flat kind, said to be the best. Some of the flat lamps have the flame so near to the body of the lamp that the containing vessel and the oil become warm; then the latter easily reaches the temperature of the flashing point, 110, 120, or more degrees. This shows that flat lamps are not by any means the safest.

2. He also says: "The lamp had been burning the greater part of two evenings since it had been filled, and so could not have been too full." A full lamp cannot explode; explosion is caused by the space in the lamp over the oil, which, when filled with air mixed with vapor of the oil, forms an explosive mixture. A barrel full of petroleum can take fire, but will never explode. Not long ago, we had an illustration in New York of the dangers of empty petroleum barrels: A man struck a match, in order to light a pipe, upon an old petroleum barrel, and it exploded at once, nearly killing him. The barrel was filled with a mixture of petroleum vapor and atmospheric air, which happened to be in the proportion necessary to make an explosive mixture, namely, 1 volume of vapor to about 10 volumes of air. In fact, the addition of 10 per cent of petroleum vapor to common air makes a most dangerous mixture. It is, therefore, an error to suppose that a lamp can be too full; and we advise house-keepers to fill them, and never let them burn out, and to avoid as much as possible any empty space over the oil.

3. It is a popular mistake to test the oil at the common temperature. Only benzine and naphtha will take fire under these circumstances; but if the kerosene is adulterated with the latter, the mixture may be ignited also. Good kerosene, when cold, will burn only with a wick; but if we warm it, the vapor will first flash on nearing a flame; if we warm it more, the oil itself will take fire.

We should, therefore, warm the oil when we test it: the simplest way is to pour some in a tablespoon and keep it in contact with the surface of hot water, of which the temperature can be found with a common thermometer; if the oil is claimed to stand the fire test of 150°, it ought not to burn before being heated to that degree. We published an illustration