

naturalized among them: a process independent of the causes supposed mainly to govern heredity.

To illustrate the relationships of parents and offspring, Mr. Galton resorts again to a political comparison. The idea of such relationship being one of direct descent he holds to be quite untenable. From his point of view, the stirp of the child is to be considered as descended directly from a part of the stirps of each of its parents, while the personal structure of the child is an imperfect representation of his own stirp, and the personal structure of each of the parents is no more than an imperfect representation of each of their own stirps. The idea of filial relationship, which likens it to that which connects colonists to their parent nations, errs in making the relationship too close and strong. It resembles more that which connects the representative government of the colony with that of the parent nations. This is his first approximation. The second approximation consists in making allowance for the limited power of transmitting acquired peculiarities, that is, for the reaction of the personal structure upon the sexual elements and thereby upon the future stirp. This he allows for by supposing the governments of the parent states to have the power of nominating a certain proportion of the colonists.

INFERNAL MACHINES.

Recent European mails bring further details of the diabolical plot which accidentally culminated in the fearful dynamite explosion on the wharf of the steamer Mosel, in Bremerhaven. It seems that the igniting mechanism was a common clock, of strong construction, and with its works so arranged as to cause a thirty pound hammer to strike a blow every ten days. The dynamite was placed in four zinc boxes arranged one above the other, the clock and hammer being between the second and third. As to how the explosion was caused there is much difference of opinion, but it is probable that it was due to one of two causes: either the dynamite exuding out of its receptacles and being exploded by the concussion of dropping the box, or the premature fall of the hammer.

It is curious to mark how much mechanical ingenuity has been expended on these engines of destruction: ingenuity which, if devoted to honest ends, would have gained for its possessors far greater rewards than they ever might hope to obtain through the terrible crimes intended. Thomassen's apparatus, above described, is comparatively crude, notably so in view of the fact that he must have examined other devices before deciding upon its use. Take, for instance, the machine which, some three years ago, it was attempted to ship aboard one of the Messageries Maritime Company's vessels, at Bordeaux or Marseilles. As usual, a heavy insurance on worthless goods was the object of the plan. The principle of this arrangement was that of the needle gun. The needle was set in a bolt, which was acted on by a spring in a tube. In order to hold the bolt back, thus compressing the spring, a catch on the former engaged with a hammer-headed lever. The lever was also attached to springs, which tended to draw it away from the catch, but the operation of which was opposed by a large disk placed close against the lower part of the lever head and held in its place in front of the catch on the bolt. In the disk there was a notch deep enough for the lever head to drop into when that portion of the disk was suitably presented. The disk was rotated by a train of clockwork at a fixed speed, and its edge was spaced off so that two consecutive marks would come opposite a fixed point in exactly one day. Supposing, therefore, the disk to be marked in ten portions, and the machine to be required to explode in eight days, the lever would be set at the eighth mark from the notch. The clockwork started, the disk would revolve until, at the eighth day, the notch would come opposite the lever, and the latter would fall into it, so freeing the needle and exploding the cartridge. All of this mechanism was placed in a common packing box, and nitro-glycerin or other fearfully powerful explosive was used. Fortunately the scheme was discovered and frustrated in time.

The coal shell is another infernal device, the invention of which, the London Times intimates, may be attributed to some over-zealous supporter of Mr. Plimsoll's parliamentary endeavors to prevent the sacrifice of sailors' lives in rotten ships. Each shell was a hollow brass casting, resembling a moderate-sized lump of coal, and was simply filled with an explosive mixture. When coal was delivered to a vessel, it was intended (said the witness, who is supposed to have concocted the shell and the sensational story) to mix in a few of the shells, which, when carefully blacked, it would be impossible to distinguish. They would, with the coal, be shoveled into the furnaces, and instantly blow up, destroying the vessel, whose loss would probably subsequently be attributed to a boiler explosion.

Ingenuity of a much higher and hence more fiendish order has been brought to bear in the construction of "rats," which are of two species, one intended to operate on iron, the other on wooden ships. The iron ship rat consisted of a pig of iron, similar in appearance to that commonly used for kentledge or ship's ballast. Of course where several hundred of these pigs were carried next the keelson and on the floor of the ship, careful scrutiny of each would be altogether impossible. Into the block a hole was made, and in this a tubular boring tool, hollow and filled with acid, was placed. Above the tool a weighted lever was rigged, and so placed as to work to and fro horizontally in a space cut out of the top of the pig. The whole was carefully boxed in, and the surface of the iron restored. The rolling of the ship would cause the lever to sway back and forth, and so act on the tool as to carry it against the ship's side. A spring helped to push the tool, and the latter, aided by the acid, very slowly but surely

made its way through the iron and opened a leak. The latter, being in a location very difficult to find or even to plug, unless closed in some way would cause the ship to fill and sink.

The wooden rat was much more complex, and certainly more ingenious. In a box were placed, at a distance of five feet apart, two vertical cylinders. Between these was a horizontal cylinder having a piston working in it, the rod passing through a stuffing box. The other end of the rod worked a weighted ratchet drill. The vertical cylinders were each half filled with water, and each connected by a separate pipe with opposite ends of the horizontal cylinder. When the ship rolled, the water, alternately leaving and returning to the vertical cylinders, acted on the piston, the reciprocating motion of which was converted into rotary motion at the auger, which thus worked its way through the vessel's side. After the hole was made, the auger was freed from its fastening and dropped through into the water, so that it neither choked the hole, nor remained as evidence of how the same was produced. The box, even if discovered, would indicate nothing save to a mechanical eye. Both of the rats, of course, required that their originator or a confederate should adjust them to their work.

The use of infernal machines for wholesale destruction, in order to gain insurance, is of comparatively recent date, as the old and common employment of these devices was, and still is in a measure, to destroy individuals obnoxious to the perpetrator of the crime. In 1838, it will be remembered, Fieschi devised an ingenious arrangement of twenty-five gun barrels (perhaps the prototype of the modern mitrailleuse), which were discharged all at once at the object of his hatred, Louis Philippe, without accomplishing the purpose intended, however. The Orsini bombs, designed for the slaughter of Louis Napoleon and his family, were small iron shells made in halves and screwed together. The interior was filled with powder, and the outside completely studded with nipples and percussion caps, so that it would be impossible to throw down the bomb without some cap exploding the charge. These, when tried, killed several people: but the Emperor escaped unharmed.

The simplest infernal machine is that peculiar to the New York rascal, who occasionally dispatches it per express to politicians who have fallen from his good graces. The last recipient we can recall was Comptroller Green, of this city. The arrangement received by this gentleman, luckily without injury, was a small innocent-looking box having a sliding lid. The interior of the latter was lined with sand paper, against which the heads of several matches (of the parlor or explosive kind) were placed. On withdrawing the lid, the friction of the sand paper would ignite the matches and then the powder of a heavy cartridge in the box. The effect would be to blind or severely injure the opener; but in the case above mentioned, nefarious designs were suspected, and thorough soaking in water allowed of the box being safely examined.

We had prepared drawings of some of the ingenious machines which, as above described, have been applied to such diabolical uses, and contemplated publishing engravings of the same in connection with the foregoing article; but on second thought, it seemed to us wiser not to do so. Crimes, say those who have made the evils of mankind a study, are epidemic; and there are minds so delicately poised that but a mere touch is necessary to turn them in the direction of evil. Mr. James T. Fields has recently had a lengthy conversation with that incarnate infernal machine, the Boston boy murderer Pomeroy, who so mercilessly mutilated his little playfellows; and as a result of his interview, Mr. Fields traces the boy's mania for blood, in some measure, to the perusal of the sanguinary yellow covered literature of the dime novel type. Doubtless the writers and publishers of the murderous adventures would be as much shocked as any other good members of the community would be, could the effect of their work on badly balanced and illiterate minds be demonstrated to them beyond doubt. So therefore we, desiring above all else to avoid even the remotest probability of working evil, think best to deny our pages to the semblance of the means whereby crimes so horrible and atrocious have been committed, for the harm caused might vastly exceed the advantage of such knowledge as the pictures might impart.

SAFE SAVINGS.—AN IMPROVEMENT NEEDED.

Our English cousins are fast reducing the problem of how to live cheaply and save money to a science. They have invented coöperative societies of which the members can buy the necessaries as well as the comforts of life at greatly reduced rates, and have long since brought annuity schemes and similar facilities for putting by funds to a high degree of perfection. The latest invention of this kind is the Provident Knowledge Society, an incorporate association whose professed object "is to endeavor to make regular weekly saving a national habit, and so increase the facilities for saving that it shall be as easy for a man to put by a small sum as it is now for him to spend that sum in beer or spirits." A high aim certainly, and one cannot but feel curious to know will be the practical result.

The association, it seems, works in two ways: First by advising people, either verbally or by letter, relative to forming schemes to encourage frugality, and second by issuing pamphlets, written in the simplest and plainest language, about various subjects of the same nature. Supposing, therefore, a workman can save a few pence a week, and has no idea how to do it, or what the result will be if he does, he sends a penny stamp to the society with his question, and back comes the necessary manual, telling him all he wants to know with official precision. There are pamphlets about

life insurance, pawnbroking, saving banks, hints for working men, to general employees, and to servants, and suggestions how to start coöperative stores and penny banks, the details of which it is hardly necessary to go into, since in this country a very different condition of affairs in point of facilities for saving money, unfortunately perhaps, exists. We say unfortunately, because there is really among us no definite and absolutely certain system whereby a man, after he has put by his savings, can be assured that they will always be his. He has a choice, to be sure, of depositing his funds in a bank and leaving them there idle, but subject to check at sight, or of placing them in a savings' bank, gaining a certain interest, or of buying an endowment or annuity policy from an insurance company. We refer, of course, to very small amounts, and therefore such investments as good mortgages or government bonds are out of the question. The difficulty with all three plans abovementioned is their lack of absolute security. Banks, flourishing one year, may find cause to suspend the next; saving institutions (as did several of the largest recently in this city) may suddenly collapse and sweep away the hardly earned savings in an instant; and insurance companies are by no means exempt from a like fate. So that, after all, the working man, who here puts his money out of his possession for safe keeping, does so with the knowledge of incurring a risk.

It has frequently occurred to us that a plan might be perfected whereby the government could be made the repository of the public's savings, and perhaps a system of post office savings banks devised, imitating that now in vogue in England. There every post office is a legal recipient for deposits of any sum over one shilling; the account of each and every depositor is kept at the head office in London, and, immediately after he pays in a deposit, he receives post free a letter from the metropolis announcing the placing of the sum to his credit. When he wishes to draw all or a portion of his funds, he notifies his postmaster, who reports to London the amount called for, and the depositor again receives a free letter, advising him of the fact and inquiring whether all is right. This letter he carries to the postmaster who, in return therefor, pays him the money. This plan effectually precludes every possibility of fraud by intermediate agents, and the depositor has the security of his government for the safety of his cash. He is provided with a bank book, and in other respects deals with the post office as if it were an ordinary savings' bank. Two and a half per cent interest is allowed him on his deposit. In conjunction with this system, the government sells annuities, so that any person can, by depositing a small sum for a certain period, purchase an annuity for the rest of his life.

In one of the pamphlets published by the society above mentioned, the inquirer is told what, under the annuity plan, can be done for eight pence (16 cents) a week. For that sum, paid from the age of nineteen to sixty, any man may obtain, on government security, a pension of five shillings (\$1.25) a week for the balance of his life. For four pence (8 cents), paid during the same period, he may buy a pension of 60 cents a week, and more or less in proportion. If the depositor who begins at nineteen dies before he attains the age of sixty, say at forty years of age, the money that he has laid by is returned to his heirs at law in absence of a will, or to any one he may designate; it amounts to £35, or \$175. If he dies at fifty, about \$260 would be returned, and so on. So that the arrangement is entirely different from an endowment life policy by an insurance company, which might be forfeited through failure to pay premiums. This advantage more than compensates for the comparatively small returns which the investment at first sight appears to yield. There is beside, under this pension or annuity arrangement, a provision for drawing out money in case of illness.

It will be seen therefore that the depositor may either use the government as a temporary depository for his savings or he may buy from it, for a very small weekly sum, a pension sufficient to keep him from want in his old age. There are several circumstances which militate against the adoption of a scheme of this kind here, but we imagine that ultimately the objections might be overcome. The principal one lies in the fact that our post office is a non-paying institution, and is a charge instead of a source of revenue to the country. The question then arises of whether the increased burden which the post office savings' bank department would add, to that already existing, would be compensated for by the benefits gained. Again, this being a country of magnificent distances over which to send a free letter for each deposit or withdrawal, it would be an expensive proceeding; and it would be necessary to designate several cities where accounts for adjoining sections of the country could be kept. There are various other considerations which might be mentioned, relatively to adopting the system here. In England, however, recent statistics show that about one person in every seventeen of the population takes advantage of the facilities thus afforded, a fact which fully demonstrates the value and popularity of the plan.

There is no mistaking that the circumstance of the recent collapse of the savings' banks in this city has, for a time at least, shaken public faith in institutions of that character, and indicated moreover how little people examine into the affairs of concerns to which they entrust their funds. Whether the safe English system be adopted here or not, certain it is that a safer plan for poor people's savings is badly needed; and in modifying the English or devising another or better plan, our political economists and financiers will find a useful opportunity for the exercise of their abilities.

BATHE weak eyes before retiring at night with a little sugar dissolved in warm water.