A WOMAN'S VIEW OF THE PATENT OFFICE.

Elizabeth Kilham has recently visited the Patent Office, and she there saw a good deal that gratified her curiosity. In a letter to the *Evening Post*, she tells

WHERE INVENTIONS COME FROM.

"Since the organization of the Patent Office one hundred and ten thousand patents have been granted. Between five and six hundred of these were to citizens of foreign countries; the remainder to American citizens. The acting Commissioner, General Duncan, in an exceedingly able and interesting lecture delivered before the American Social Science Association last March, makes the following distribution of patents: 'To New England, about twenty per cent, Massachusetts having as her share ten per cent, and Connecticut five; to the Middle States, thirty-six per cent, New York alone receiving twenty-three per cent; to Ohio and Illinois seven per cent each; to California, two per cent.; and to the eleven States that engaged in the rebellion, but four and one half per cent.' In evidence of the impulse given to the southern mind by the removal of the institutions which produced such complete mental and physical stagnation, may be taken the fact that while, before the war, the agricultural inventions of the South were barely two per cent of the whole, they have, since the close of the war, reached seven per cent.

"Inventions are most numerous in agricultural implements and household conveniences. Of agricultural inventions, the greatest number is from the West; of inventions in manufactures, from New England and New York. The applications for patents form a curious index to the mind of the country. There are what may be called epidemics of invention. Whatever interest is dominant for the time being is almost unerringly indicated by the business of the Patent Office. It is like laying the finger on the pulse of the nation and counting its heart beats. During the rebellion, inventions and improvements in everything that could in any way be used in war, completely overwhelmed the examiners. During the velocipede mania four hundred and thirty-two applications were made for patents in four months' time. Never a great fire but brings out some improvement in fire-escapes or heating apparatus. Never a great burglary but is almost immediately followed by one or more inventions in locks. Scarcely a kerosene accident, but brings an improved burner. In this one article over four hundred patents have already been granted. Last spring, when so many banks were deceived by checks altered from small to large amounts, there were filed in less than a week over forty applications for patents for an invention by which such alteration could be at once detected. Each one of the forty applicants expected, no doubt, to make his fortune from so exceedingly useful and important an invention. They all embodied nearly the same idea; and an examination showed that a patent had been issued for the very same thing thirty years ago. When planchette was the rage a dozen inventions of that kind were before the examiner at one time. To all of them patents were refused on the ground that it was not a useful invention; but, on the contrary, decidedly pernicious and mischievous; many persons having thereby been rendered insane.

HOW TO GET A PATENT.

"Before granting a patent various questions besides the novelty of the invention are considered. This is, of course, the primary question, 'Is it new with the applicant?' The decision of this question involves an immense amount of labor and research; an examination of all the reports and drawings, not only of American patents but those of foreign countries, and numerous scientific works. Legal questions are also involved which must be carefully decided. The question of novelty being settled, that of utility arises. Is the invention useful; or is it trivial, inoperative, or positively injurious and hurtful? In either case a patent is refused. A notable case of refusal of a patent on account of the mischievous tendency of the invention occurred under the administration of Hon. Joseph Holt. The applicant desired a patent for 'a policeman's club, so constructed that, upon releasing a spring, a triple row of keen-edged lancets would leap from hidden recesses and mangle the hand of an adversary.' The applicant's professed object was to provide a weapon which should obviate the necessity of the carrying of firearms by policemen, and yet to furnish them with a full means of protection. The Commissioner refused the patent on the ground that while the professed object was a laudable one, 'the transforming of the implement to a weapon of offence in the hands of desperadoes, as would inevitably be done, would be a great evil.' In his decision occurs this forcible sentence: 'An invention, to be patentable, must not be useful to the few with a chance of its becoming hurtful to the many; but it must clearly appear that, in view of the interests of the whole community, the good would decidedly preponderate over the evil.'

"In almost all classes of invention the names of women appear as patentees. In articles of wearing apparel they are largely represented. Several improvements in cooking stoves bear female names. An Indiana lady has invented a fluting machine; another, within a few months, has taken out several patents for different improvements in the construction of axles; and women's names are attached to some valuable improvements in surgical apparatus, this last forming a strong argument in favor of the idea advanced by some eminent physicians that women are peculiarly fitted by nature for the study and practice of medicine.

A PLACE OF ARBITRATION.

"Leaving the 'model hall,' we descend to the lower floor, and passing the examiners' rooms; the library, with its twenty thousand volumes; the draftsmen's room, where are preserved drawings of every invention for which a patent has been sought since the organization of the office; the record room, where are the printed reports of patents granted, the issue of each week in a separate volume, we come to the sunny southeast corner, where, in a pleasant room, brightened by the most cheerful of inanimate things, a blazing wood fire, the Commissioner 'improves each shining hour.' We will go in here.

"The stream of business is at flood tide, and we sit quietly and watch and listen. One o'clock is set for the hearing of a case of interference.' An interference is a proceeding to determine which of two or more persons has the right to an invention, each claiming to be the first inventor. The principals are not present. Their respective attorneys argue the case—outwardly calm, inwardly raging. 'Their words were smoother than butter, but war was in their hearts.' The decision is made, and they retire; one jubilant, the other in an unmistakable fit of the sulks. 'Will the General see a gentleman?' inquires the magnificence at the door. The General will; and a quiet-looking elderly man enters, evidently under great excitement; that kind of excitement so intense that it produces a calm almost like death. He lays a model on the table. 'This does not represent my case,' he says. 'I find that the model is made wrong. This,' holding out a little piece of machinery, 'should have been put in instead of that. Can I substitute it now?' 'How is your drawing?' the Commissioner asks; 'does it correspond with this model, or with what you intended?' 'It is like this.' 'Then all you can do is to withdraw this and file a new application.' 'I have spent months upon this;' his hand trembles and there is a quiver in his voice. The General's keen eye takes it all in, and very gently he says: 'I wish I could do otherwise; but in these matters the office has no jurisdiction; we have to go according to law.'"

Law of Increase in the Population of the Globe.

The law of the relative increase in the numbers of mankind, and in the supply of food and other commodities required for their support may now be found in the following propositions:

Motion gives force, and the more rapid the motion the greater is the force obtained.

With motion matter takes on itself new and higher forms, passing from the simple ones of the inorganic world, and through those more complex of the vegetable world to the highly complicated forms of animal life, and ending in man.

The more rapid the motion the greater is the tendency to changes of form, to increase of force, and to increase of the power at the command of man.

The more simple the forms in which matter exists, the less is the power of resistance to gravitation; the greater the tendency to centralization, the less the motion, and the less the force.

The more complex the form, the greater becomes the power of resistance to gravitation; the greater the tendency to decentralization, the greater the motion, and the greater the force.

With every increase of power on the one hand, there is diminished resistance on the other. The more motion produced the greater must, therefore, be the tendency to further increase of motion and of force.

The most complex and highly organized form in which matter exists is that of man; and here alone do we find the capacity for direction required for producing increase of motion and of force.

Wherever the greatest number of men exist we should therefore find the greatest tendency to the decentralization of matter, to increase of motion, to further changes of form, and to the higher development commencing in the vegetable world and ending in the increased production of men.

With every increase in the extent to which matter has assumed the form of man, there should, consequently, be an increase of his power to control and direct the forces provided for his use; with constantly accelerated motion, and constantly accelerated changes of form, a constant increase in his power to command the food and clothing needed for his support.

In the material world, motion among the atoms of matter is a consequence of physical heat. Greatest at the equator, it diminishes until, as we approach the poles, we reach the region of centralization and physical death.

In the moral world it is a consequence of social heat; and motion, as has been already shown, consists in "an exchange of relations" resulting from the existence of those differences that develop social life. It is greatest in those communities in which agriculture, manufactures, and commerce are happily combined, and in which, consequently, society has the highest organization. It diminishes as we approach the declining despotisms of the East, the regions of centralization and social death. It increases as we pass from the purely agricultural States of the South towards the regions of more diversified industry in those of the North and East, and there, accordingly, do we find decentralization, life, and force.

Centralization, slavery, and death, travel hand in hand together in both the material and the moral world.

The view here presented differs totally from that commonly received, and known as the Malthusian law of population, which may thus be given:

Population tends to increase in a geometrical ratio, while the supplies of food increase in an arithmetical one only. The former, is, therefore, perpetually outstripping the latter, and hence arises the disease of over-population, with its accompaniments, poverty, wretchedness and death; a disease requiring for its remedy, wars, pestilences and famines on the one hand, or on the other, the exercise of that "moral restraint" which shall induce men and women to refrain from matrimony, and thus avoid the dangers resulting from addition to the numbers requiring to be fed. Reduced to distinct propositions, the theory is as follows:

1. Matter tends to take upon itself higher forms, passing from the simple ones of inorganic life to those more beautiful of the vegetable and animal life, and finally terminating in man.

2. This tendency exists in a slight degree in the lower forms of life, matter tending to take on itself the forms of potatoes and turnips, herrings and oysters, in an arithmetical ratio only.

3. When, however, we reach the highest form of which matter is capable, we find the tendency to assume it existing in a geometrical ratio; as a consequence of which, while man tends to increase as 1, 2, 4, 8, 16, 32, potatoes and turnips, herrings and oysters, increase only as 1, 2, 3, 4; causing the highest form perpetually to outstrip the lower, and producing the disease of over-population.

Were this asserted of anything else than man, it would be deemed in the highest degree absurd; and it would be asked, why a general law should here be set aside? Everywhere else, increase in number is in the inverse ratio of development. Thousands of billions of coral insects are needed to build up islands for men and animals that count by thousands or by millions. Of the *clio borealis*, thousands furnish but one mouthful for the mighty whale. The progeny of a single pair of carp would in three years amount to thousands of billions; that of a pair of rabbits would in twenty years count by millions; whereas that of a pair of elephants would not number dozens. When, however, we reach the highest form, we hear of a new law, in virtue of which man increases in a geometrical ratio, while increase of the commodities required for his use is limited to the arithmetical one.

Endowed with faculties that can be developed solely by association with his kind, made in the image of his Creator, and gifted with the power to distinguish right from wrong, man is thus required to choose between starvation on the one hand, or, on the other, abstinence from that association which tends, in accordance with the divine command, to promote increase of numbers. Such is the generally received doctrine of modern political economy, and, strange as it appears, no proposition has ever yet exercised more influence on the fortunes of the human race. That it should so have done has partly resulted from the fact that it has been propped up by another, in virtue of which man is supposed to have commenced the work of cultivation on the rich soils which would give large returns to his labors, and to have been compelled, with the growth of population, to resort to poorer ones, with constant decline in the reward of his toil—a theory that, if true, would establish the correctness of the Malthusian law of population.—*Carey's Social Science.*

Curiosities of Scientific Literature.

Among the curiosities of scientific literature, a little work, published a few years since, must find a place. It is entitled "Principles and Rudiments of Botany, delivered according to an Iulian system of arrangement and Iulian method of classification; by C. R. W. Watkins, Gent., late Captain in the Bombay Army." These "principles and rudiments" are here, according to the preface, delivered in language "better adapted for the intellectual amusement and instruction of young persons of both sexes" than that employed in previous works; and "Botanical science" is "rendered more agreeable to students in modern times." The following extract will give a faint idea of the mode in which these promises are fulfilled, and also of the contents of the volume: "The pink (*Dianthus*) has four or five idola, ten to twenty ikona, and twenty to forty petala. The flowers are few, and di, tri, quinque ligate, and they terminate separately and irregularly. The Sweet William (*Dirythme*) has two idola, ten ikona, and five petala. The flowers are numerous and chorovinkulate, and the mode of gemmation comprises several synterminal and equimarginal chorrythma, or conturrythma. They cannot, therefore, be of the same genus; because the numerical indices, and typical characters of each gemmos, or hermaphral gemm bud of the two kinds of plants, are not symbolical; but differ, as well as the mode of gemmation, more widely than the specific, and physical circumstances of their constitutional, or peculiar veget-organical structure."

Weights for Use in Experiments.

It is a source of constant annoyance to chemists and scientific investigators generally, that the minor weights in use are so small and so easily affected by atmospheric influence, that in a short time they cease to be trustworthy. The great requirement is a substance of less specific gravity than the copper, brass, or platinum, usually employed, and not liable to tarnish by exposure to the air—for which the proper name is decay. Dr. Phipson, of England, relates that he has used a set of weights made of aluminum, well known as the metal of the least specific gravity, for the last ten years, by MM. Collet Frères, of Paris. The doctor always touches the weights with pliers made of soft brass, and exposes them as little as possible to the air of the laboratory. He reports that they are almost as brilliant in color as when new, and although they have been used twice or thrice a day for the whole ten years, they are still perfectly accurate. Brass or copper will yield to the atmosphere an appreciable fraction of its gravity; and the small weights made of either metal are very troublesome to handle, and are likely to lead to errors. The aluminum is better for the purpose than even German silver and its kindred alloys, which are remarkable for their resistance to tarnish. Makers of scales for scientific purposes or druggists' use, will do well to note these facts.

Canadian millers are largely importing wheat from Chicago and Milwaukee.