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The New Board of Appeals.

As announced in our last number, Commissioner Holt has appointed a regular BOARD OF APPEALS, consisting of three Chief-examiners, whose exclusive duty will be to review all rejected applications that may be duly brought before them. The Board consists of Chief-examiners Thomas H. Dodge, DeWitt C. Lawrence, and A. B. Little. Their action will be as follows:—Whenever an application for a patent has been twice rejected, the applicant may, in person or by attorney, request a review of his case, on appeal, by the Commissioner. The Board will assist the Commissioner in this duty, by carefully examining and summing up each case for him, rendering to him a written report of the result or opinion to which they arrive. The Commissioner will then decide, finally, in every case, by approving or rejecting the report of the Board, as seems to him most proper.

The establishment of this Board is a movement of great importance. Its necessity has, for a long time, been clearly apparent, but never more so than since the advent of the present Commissioner. His frequently-expressed intention to administer the laws with a spirit of broad liberality, and his firmness in practically carrying out whatever he deems to be just and right, have had the effect to inspire confidence in him among the ranks of inventors and all classes. Where injustice has been done to them, they have not been backward in appealing to him for redress, and so far as within his power, they have never appealed in vain. Hundreds of rejected applicants have pressed their suits before him, and have come away rejoicing.

So large has been the number of appeal applicants, and so constantly are they augmenting, that the Commissioner has been utterly unable to review every case in person. It has, therefore, been his custom, as it was of his predecessors, to seek assistance by referring appeals to a special Board, consisting of two Examiners, selected at random from the examining corps. Whenever these Boards happened to be composed of liberal-minded Examiners, a result in harmony with the Commissioner's views was always obtained. But when, as was too frequently the case, the Boards were composed of certain old Examiners or jointly of one elder and one younger member, either injustice was likely to be done to the applicant, or a total disagreement took place. The elder Examiners would generally refuse to sanction the liberal interpretation adopted by the Commissioner, while the younger members would firmly insist in following the instructions of their Chief. The result was, that the labor of review was thrown back upon the Commissioner, and the system of reference, instead of being a relief to him, must, we think, have become a positive nuisance. In addition to the trouble occasioned by the disagreement of the Boards, the Commissioner received frequent complaints of injustice and illiberality on the part of the elder members, and was constantly entreated by applicants not to refer their cases to them.

We commend the Commissioner for the calm patience that he has ever exhibited towards the refractory portion of the examining corps. We have often wondered that he did not at once remove them, and supply their places with men who were less disposed to array their personal opinions in opposition to his apparently plain rules. But the measure now adopted will probably restore harmony in the Office without recourse to such an extreme.

One of the most important effects of the creation of the Board of Appeals will be to render the practice and decisions of the Office uniform. The greatest incongruity has heretofore existed, because so "many men of many minds" have been allowed to have their

say. Applicants have found by experience that the Office was in the habit of deciding one way to-day, but just the contrary the day following. Such results were productive of great mischief to applicants, while they also exposed the management of the Office to the jeers and contempt of the public. The Board of Appeals now appointed, if they pursue the course which has heretofore characterized their conduct as Examiners, will be the means of putting an end to all erraticisms, by introducing plain, systematic and uniform rules of action, to be applied inflexibly to every case that comes before them.

The selection of candidates to compose the Board of Appeals must have been a matter of the most serious consideration on the part of the Commissioner. The practice which they adopt will undoubtedly have an important influence upon the future prosperity and destiny of the Office. Their position is one of grave responsibility. They cannot exercise too much care or deliberation in settling upon the course which they are to pursue. In this matter they will doubtless be assisted by the mature counsel of the Commissioner. We could ask for nothing more.

While we rejoice at the opportune movement of Commissioner Holt in establishing the Board of Appeals, we would also express our unequivocal satisfaction of his appointments to that Board. His selection is in the highest degree fortunate. The appointees are all men of firm integrity, reliability, talent and liberality—the very persons whom applicants would select to hear their appeals, if the choice were left with them. Although belonging to the younger portion of the corps, they are gentlemen of long-trying experience and prudence as examining officers. Their past official action has always given satisfaction; their antecedents are well known. We are confident that they will not disappoint the high expectations that are entertained concerning them.

The course of Commissioner Holt in establishing and appointing this Board of Appeals is but another evidence of his peculiar fitness for the high office which he holds. The beneficial results of his official policy are already felt in every section of the country. If his life is spared, and the same policy continued, we predict that the Patent Office, under his administration, will reach a height of prosperity and usefulness that it never before attained.

Artificial Illumination.—Burning Fluids.

The most degraded savage stands infinitely above the most intelligent of the brute species by the use of two discoveries, viz., fire and artificial light. The Esquimaux, in his dreary clime, cheers his ice-tent, during his long wintry night of six months, with light from the blubber of the whale; the Indian, in the dark tangled forest, lights up his wigwam with the blazing pine knot, or fat of the deer; and the civilized white man illumines his houses and cities with a subtle gas made from coal obtained from the bosom of the earth, or with some of the numerous hydro-carbon fluids.

Human life cannot be enjoyed without artificial light; if man were deprived of this agent, he would become a brute. In proportion as the means of obtaining artificial light are improved, and rendered accessible to the multitude, so, in proportion, is the mass benefited and elevated in a social capacity. As the light of the sun cheers the whole world, so does artificial light increase the happiness of those who possess it. The bright fireside sends a glow of cheerfulness through the whole family circle, and the sparkling chandelier, with its numerous burners, thrills a whole assembly. How warm and cheerful, on a winter's night, is the appearance of a city whose streets are well lighted, in comparison with the dull gloom which overspreads one of our villages slumbering in darkness! When we think of the vast extent of our artificial illumination, embracing as it does every house in the land, all the streets in our cities, and most of our villages, we must conclude that it forms one of the largest items of constant

expenditure belonging to communities and families. To obtain the cheapest and best artificial light, therefore, is a question of no small importance. Our intention is to present some observations on the fluids used for this purpose.

Not many years ago, the only fluids employed in our country for household light were animal oils, obtained by perilous adventure on the stormy sea with monsters of the deep. At present, whale oils are in comparatively limited use for illumination, and are becoming more limited every year. Sperm oil has no superior among all the burning fluids, but it has become so dear that cheaper substitutes have been sought and obtained. The most common of these is a compound of alcohol and turpentine, commonly known by the name of *burning fluid*, which is very cheap and cleanly, possessing none of that greasy property which belongs to oils. This fluid was first brought into public use in 1830, when a patent (now expired) was obtained for it by Isaiah Jennings, of New York City. It is composed of about nine parts of highly rectified alcohol, and one of camphene, and is capable of burning in common lamps; were it not so volatile, no burning fluid could be more desirable. From its very nature, however, it must be used with great caution and care, because it is so liable to evaporate and become explosive by mixing with the atmosphere. Horrible accidents, causing death in many instances, have occurred from the explosion of lamps since it came into use, hence a safer substitute is desirable.

From some kinds of bituminous coal a sub-spiritous oil is now manufactured, which is fast coming into popular favor, owing to the improvements which have recently been made in the means of purifying, and in the lamps designed for burning it. It is but a few years since it was first discovered that oil could be distilled at a low temperature from rich cannel coal, and now this oil is almost exclusively employed for lubrication in Great Britain, while it is extensively used both for lubrication and illumination among our people. Vast beds of the rich coal from which this oil can be obtained exist in Pennsylvania, Ohio and Kentucky, affording sources of supply for thousands of years to come. This oil passes over in a very crude state, incapable of being generally employed for burning on its first distillation; but by the use of sulphuric acid, the bichromate of potash, several washings and distillations, it is purified so as to afford a most brilliant light in an argand burner. Coal oils are very peculiar; a very clear oil will come over in small quantities at a comparative low heat during distillation; then as the temperature is raised, a greater quantity comes over, but it is thick and viscid. All these oils are liable to become red in color by exposure to the air, and they have an offensive odor.

Rectified turpentine, under the name of *camphene*, which is very cheap, has been tried for illumination, and judgment passed against it. It requires, like coal oil, an argand burner, and even with the greatest care it is liable to smoke, and fill up the meshes of the lampwick with resinous matter. Rosin oil, although very cheap, labors under the same disadvantages.

It is a remarkable fact that while all the animal oils may be burned in common lamps, very few of the vegetable oils can be so used. The great defect of most vegetable oils for burning is their gummy nature, which causes them to clog up the meshes of the wick, and give out only a dull reddish and smoky light. The two vegetable oils capable of burning, in lamps, are made from the olive, and the seed of the *brassica napus* (rape seed). This oil is capable of rivaling sperm for giving a brilliant light. Patents have been taken out for purifying linseed, cotton seed, and sunflower seed oils, to adapt them for artificial light, but hitherto none of them have come into general use; the processes pursued to purify them have either been inefficient or too expensive. Neither the olive nor the rape are cultivated for oil in our country, yet the former may and

should be, for its beautiful oil, in our southern States, and the latter for the same objects in all our States. In France and Germany, rape seed is extensively and profitably cultivated. The oil exists ready formed in the seed and is extracted by pressure, like other oils obtained from seeds. The seed is first ground to meal, then heated to 200°, placed in bags, and submitted to very severe pressure. As the oil comes from the press, it contains some mucilage, which must be removed to fit it for burning. This is accomplished by stirring about two per cent of vitriol among it, washing with water in vats, and afterwards filtering it. The sulphuric acid unites with the mucilage of the oil, and falls down as a heavy precipitate; the oil floats on the top of the water after standing a few days, and is then drawn off by a siphon or tap. This oil, which can be employed in common lamps, illumines the light-houses on the French coast, which are said to be the best lighted in the world. It is, at least, an oil to which we wish to direct attention, in order to induce some of our people to introduce a useful manufacture.

We are well aware that, several years ago, at the suggestion of the Lighthouse Board, a quantity of rape seed was imported, and was distributed through the Patent Office for culture; but in our opinion, the experiments made to cultivate it were not properly conducted, or else the Lighthouse Board would have been supplied with *colza* oil (as was their object) before the present time. As this oil is of a superior quality for lamps, neither one failure nor a number of them should discourage efforts for its development among our people.

A New Year's Gift.

This festive season, mixture as it is of so much joy and so much sadness, will in a few days be upon us, and we must prepare to give young 1858 that reception which an untried year in Time's great line deserves. Present-making will be in fashion, and we would call the attention of our readers to the SCIENTIFIC AMERICAN as a suitable present for employers to bestow upon their apprentices, fathers on their children, and mutual friends the one to the other. It cannot do harm, and must do good, for the weekly reception into a household of a journal containing nothing but sound, pure, and pleasant information, is an advantage, the results of which cannot be too highly estimated. We would also advise those who have not yet subscribed on their own account, to do so at once; there is no better time than the present, and it would be beginning the New Year well to secure to themselves what our readers call "the most useful journal of the day." In conclusion, follow our advice and you cannot fail to have that which we earnestly wish you, namely,

A HAPPY NEW YEAR.

Malic Acid.

This acid is found in apples and the juices of similar fruits, and is also present in the mountain ash and garden rhubarb, to which it gives the peculiar tartness that is so agreeable to the palate. It is capable of being separated by the processes of the laboratory, but in its pure state no useful application has been found for it, although we think it might advantageously be employed in the manufacture of those summer beverages in which a sweet tartness is so cooling and agreeable. The difficulty attending its preparation may perhaps for some time prevent this, but that it will be more generally used we do not doubt.

Our Prizes.

The names and addresses of those who have succeeded in obtaining the fifteen largest lists of subscribers to our present volume will be duly announced in next week's issue, together with the number of names furnished by each and the sums of money to which they are respectively entitled.

Our readers will please to bear in mind that our paper goes to press a few days previous to its actual issue, hence the necessity of the delay in the announcement. The lists, however, are closed on the 1st of January.