ed, and the light exhibited on the evening of 1 st October 1835, and so great was the satisfaction which the change produc­ed, that the Commissioners immediately instructed Mr. Ste­venson to make a similar change at the fixed light of the Isle of May, where the new light was exhibited on the 22d Sep­tember 1836. The Trinity House of London followed next in adopting the improved system, and employed Mr. A. Steven­son to superintend the construction of a revolving diop­tric light of the first order, which was afterwards erected at the Start Point in Devonshire. Other countries begin to shew symptoms of interest in this important change; and America, it is believed, is likely soon to adopt active measures for the improvement of her lighthouses. Fresnel, who is already classed with the greatest of those inventive minds which extend the boundaries of human knowledge, will thus, at the same time, receive a place amongst those benefactors of the species who have consecrated their genius to the common good of mankind ; and, wherever maritime inter­course prevails, the solid advantages which his labours have procured, will be felt and acknowledged.

The fuel commonly adopted in the best lighthouses of Great Britain, is spermaceti od, which is obtained from the South Sea whale, *(Physeter macrocephalus) ;* and in France the oil generally burned is expressed from the seed of a species of wild cabbage, *(Brassica oleracea colza),* and is called *huile de colza.* It appears from some experiments made by M. Léonor Fresnel at Paris, in which he compared the intensity of the light produced by the combustion of equal parts of this oil and the spermaceti oil used in Eng­land, of which specimens had been sent to him by the Tri­nity House of London, that there is but little difference. This conclusion differs somewhat from the result of the trials at the Isle of May and Inchkeith, where flames of similar di­mensions to those produced from the colza oil are obtained by the combustion of nearly one-fourth less spermaceti oil. In the lights on the shores of the Mediterranean, olive oil is chiefly used ; but the light obtained from it is feeble com­pared with that of spermaceti or colza oil.

In a few lighthouses which are near towns, the gas of pit coal has been used ; and there are certain advantages, more especially in dioptric lights, where there is only one large central flame, which would render the use of gas desirable. The form of the flame, which is an object of considerable importance, would thus be rendered less variable, and could be more easily regulated, and the inconvenience of the clock-work of the lamp would be wholly avoided. But it is obvious, that gas is by no means suitable for the majority of. lighthouses, their distant situation and generally diffi­cult access, rendering the transport of large quantities of coal expensive and uncertain ; whilst in many of them there is no means of erecting the apparatus necessary for manu­facturing gas. There are other considerations which must induce us to pause before adopting gas as the fuel of light­houses ; for, however much the risk of accident may be diminished in the present day, it still forms a question, which ought not to be hastily decided, how far we should be jus­tified in running even the most remote risk of explosion in establishments such as lighthouses, whose sudden failure might involve consequences of the most fatal description, and whose situation is often such, that their re-establishment must be a work of great expense and time. Gas is, be­sides, far from being suitable in catoptric lights, to which, where the frame is moveable, as in revolving lights, it could not be applied.

The application of the Drummond and Voltaic lights to lighthouse purposes is, owing to their prodigious inten­sity, a very desirable consummation ; but it is surrounded by so many practical difficulties, that it may safely, in the present state of our knowledge, be pronounced unattainable. The uncertainty which attends the exhibition of both these lights, is of itself a sufficient reason for coming to this con­

clusion. But other reasons unhappily arc not wanting The smallness of the flame renders those lights wholly in­applicable to dioptric instruments, which require a great body of flame in order to produce a degree of divergence sufficient to render the duration of the flash in revolving lights long enough to answer the purpose of the mariner. M. Fresnei made some experiments on the application of the Drummond light to dioptric instruments, which com­pletely demonstrate their unfitness for this combination. He found that the light obtained by placing it in the focus of a great annular lens, was much more intense than that produced by the great lamp and lens of Corduan ; but the divergence did not exceed 30'; so that, in a revolution like that of Corduan, the flashes would lost only 11/3 second, and would not, therefore, be seen in such a manner as to suit the practical purposes of a revolving light. The great cylindric refractor used in fixed lights of the first order, was also tried with the Drummond light in its focus ; but it gave coloured spectra at the top and bottom, and only a small bar of white light was transmitted from the centre of the instrument. The same deficiency of divergence com­pletely unfits the combination of the Drummond light with the reflector for the purposes of a fixed light, and even if this cause did not operate against its application in revolv­ing lights on the catoptric plan, the supply of the gases, which is attended with almost insurmountable difficulties, would, in any case, render the maintenance of the light precarious and uncertain in the last degree.

In 1835, Mr. Gurney proposed the combination of streams of oxygen with the flame of oil or wax, in order to obtain a powerful light of sufficient size to produce the divergence required for the illumination of lighthouses. The Trinity House of London entertained the proposal, and have since been engaged in making experiments on this important subject ; and their efforts, it is believed, have been attend­ed with a measure of success which holds out a reasonable prospect of this lamp being finally used in lighthouses. In applying this light to reflectors, it is intended to use three small flames, each about three-eighths of an inch in di­ameter, which produce. It is said, an effect equal to that of ten common Argand lamps. The burner intended for lenses has seventeen films of flame, and is said to possess six times the power of the Fresnel lamp. The light is considered cheaper than that which is obtained by the combustion of oil in atmospheric air.

We shall conclude by a brief account of the lights of va­rious countries, and the mode of management that is adopt­ed, so far as we have the means of speaking with certainty on this subject.

The lights on the coast of England are under the man­agement of the Corporation of Trinity House of Deptford Strond. Before the reign of Henry VIIL, the Trinity House appears to have been merely a fraternity of seamen, and it was not till the sixth year of Henry’s reign that it was incorporated by royal charter. Elizabeth afterwards grant­ed the Trinity House certain privileges of ballastage, bea­conage, and buoyage, and empowered them to erect and preserve “ beacons and signs for the sea.” It does not appear, however, that this body specially undertook the erection of lighthouses, till about the year 1676. Before that time it was common to grant letters patent in favour of the proprietors of the lands adjoining the site of a lighthouse, empowering them to erect a lighthouse, and to levy certain duties on shipping for its maintenance. In some cases the patentee was bound to pay an annual sum to the Tri­nity House towards the support of their charities ; but in other cases, he was quite independent. The Trinity House have, in numerous instances, entered into new arrange­ments with the lessees at the expiry of their leases ; but it is now the practice of this board to erect and maintain lighthouses on the coast, without the intervention of any