Scientific American.

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Something about Science and Scientific Men.

Not long ago, the town of Leeds was, in English phrase, "honored" by the presence of Her Majesty, Queen Victoria, who opened the new Town Hall in brilliant style, and who honored herself by taking up her abode in the mansion of the celebrated mechanic, Sir P. Fairbairn, in that manufacturing place. The town of Leeds has more recently been exalted by the presence of the *savans* of Britain, at the annual meeting of the British Association for the Advancement of Science. It may be well for us, as a lesson to our association inaugurated for the same purpose, to say a few words on the extensive share of attention which the application of any scientific discovery to the useful arts of life, commerce, and popular knowledge receives from those gentlemen; and to do this it will only be necessary to mention the names of the chairmen of the various "sections." The president for the year was Professor Owen, perhaps the most eminent anatomist living, next to our own Agassiz; but he excels the latter *savant* in one important particular—he can write his knowledge, and speak it, too, in language the most beautiful, simple, and intelligible, so that even the most common mind can comprehend it; witness his numerous popular works, in the encyclopædias, the "Circle of the Sciences," and his popular lectures on paleontology and natural history, in London.

The Rev. Dr. Whewell presided over the mathematical section and physical science. He is well known as a progressive divine, and for his popular writings on the natural sciences. Of his working capabilities we can only say that, although Master of Trinity College, Cambridge, he is not dogmatically scholastic, but is a great and powerful advocate of popular education in Great Britain.

The chemical sciences received the attention of Sir J. F. W. Herschel, whose name need only to be mentioned to be appreciated, as one who has done much for the age in which we live.

Geology was cared for by William Hopkins, M. A., a gentleman whose geological knowledge is only equaled by the interest which he takes in practical mining; and the aid which this branch of art has received from his many suggestions is very great.

Physiology had for its chairman Sir Benjamin Brodie, an eminent surgeon, who carries his scientific knowledge into the truly humanistic field of his daily avocations.

Sir Roderick Murchison, Director of the School of Science Applied to Mining and the Arts, was president of the geographical and ethnological section; and should any instance of his work in the special fields of his investigation be needed, we can call to mind his work on "Siluria," and his munificient support of the Livingstone expedition into Central Africa.

Edward Baines, editor of the Leeds *Mercury*, a printer by trade, and a strong opposer of any governmental interference in moral or educational measures, was the chairman of the economic science and statistical section. His life has been passed as a practical reformer, and the liberal and friendly views he has of this country entitle him to our respect; while for the very objects which he has had under his consideration he is always working, and is a practical man eminently fitted for the position.

Mechanical science was looked after by William Fairbairn, whose investigations into the nature of cast iron, the strength of materials; and many machines are known wherever iron is worked. He is a member of the firm who have an immense machine shop in the town of Leeds, and he took good care to see that all the discussions had a useful tendency.

We hope the American Association for the Advancement of Science will look over these names, and remember that there are similar men to be found here, or if not, it should be their highest aim to develop them.

Not having space to take each section and its proceedings, we will give a *resumé* of Professor Owen's inaugural address, in which will be found a summary of what has been doing among the *savans* of Europe during the last twelve months.

The relation between magnetic storms and the spots on the sun has been fully demonstrated by the independent observations of a German astronomer and an English meteorologist; and the deductions made therefrom tend still further to show that electricity and magnetism are but different effects of the same cause. From this the president referred to nerve force, which he said might prove also to be connected with electricity; and as we had produced "valerianic acid," and other compounds generally attributed to the action of vital force solely, by chemical means, he saw no end to the application of these investigations; and in time we might supersede the slow processes of nature "by laying under contribution the accumulated forces of past ages, which would thus enable us to obtain in a small manufactory, and in a few days, effects which can be realized from present natural agencies only when they are exerted upon vast areas of land, and though considerable periods of time."

The rapid advance of photography was next mentioned; and the wondrous engraving upon metal by light, and photographic printing in carbon (two recent discoveries), were announced. The Atlantic Telegraph was introduced as the climax of Œrsted's discoveries, and in the after-part of the meetings much discussion took place concerning the cause of its stoppage; but it seemed to be generally allowed that more investigation was necessary before any definite opinion could be pronounced.

Much has also been done during the past year to fix isothermal lines with greater accuracy, the parallels of the indigene plants and animals, and to obtain a more perfect knowledge of climatology. The zones of life in the ocean (of vast importance to the fisheries) has also been studied, with a view of fixing the depths between which the various genera of marine life exist. From the dreadful losses by "plague, pestilence, and famine" which the armies suffered in the Crimea, much has been learned of value to sanitary science; and the condition of the river Thames has called philosophers' attention once more to the economizing of the waste sewage of towns as manure. Agriculture has considerably advanced, substituting useful machines for hand labor; and although the Professor did not pay us the compliment, yet we cannot help feeling that the United States has done her full share in that work. Geology is daily teaching us more of the nature of soils and their constituents; and we should quickly endeavor to lay hold of and improve the knowledge we possess.

After reviewing the good done by the British Museum, Kew Gardens, and other museums and places of popular instruction, the first meeting closed, and the sections fell to their separate labors, the results of which will appear from time to time in the SCIENTIFIC AMERICAN, as we can find space for such paragraphs as may interest our readers.

We cannot conclude without asking why have we not museums like the British, botanical gardens like Kew, and a zoological collection like that in Regent's Park, London, or the Jardin des Plants, Paris, with men of the same caliber, having the same interest in the spread of popular knowledge as those, and an association like the above on these shores? And echo replies, "Why not?" With a firm conviction of its truth, we believe there is enough money stolen and squandered upon foolish schemes in this city in one year, to establish here a zoological garden, and in every five years a museum of giant proportions—the center of vast interest and profit to all our people. Why cannot the citizens of New York—the most wealthy commercial city in America—do something in this very department to still further invite the stranger to visit their city? Surely the present state of indifference on subjects of a scientific and esthetical nature ought no longer to exist.

Are Coal Oils Explosive?—Adulterations.

An intelligent correspondent informs us that he has recently witnessed the violent explosion of a gas lamp in which coal oil was used, and he says that "as it is generally supposed to be free from liability to explosion, if adulteration by means of other dangerous burning fluids is resorted to, the means of detecting it ought to be generally known." The inquiry is a very important one, as oils bearing this designation are now very extensively consumed, and their manufacture has become one of the most extensive in our country. It is also a question of personal safety, and it is therefore of great consequence that all possible light should be shed upon the subject.

Pure coal oils are not—strictly speaking—explosive, because they are only sub-spirituous, and stand mid-way between the fixed and volatile oils. They are, however, (like camphene) capable of intimate mixture with alcohol, and if adulterated with it, they become like the common *burning fluids*, which have caused so many dreadful explosions.

We will here state, as a scientific fact, that none of the burning fluids will explode while in a fluid state; they must first be converted into gas and then mixed with about eight volumes of the atmosphere, so as to become saturated with oxygen, before they will explode instantaneously. As alcohol contains a great amount of hydrogen, which is the lightest of gases, it is very susceptible of assuming the gaseous condition; hence the danger of mixing coal or other oils with it. We have been credibly informed that some coal oils which are sold for the genuine article, are adulterated with alcohol; hence some lamp explosions may have ensued in the use of these. So far, however, as our personal knowledge extends, we know of no such accidents.

Most of the lamps which have recently been invented for burning coal oil, and volatile burning fluids, are perfectly safe in the charge of careful persons; we therefore advise all those who use coal oils,—since they cannot tell whether they are adulterated or not—to exercise the utmost caution in filling their lamps, and in having them made strong and tight, and they will be sure to avoid explosions.

Enquiries have also been made of us in regard to the means of detecting adulterations in coal oils, and some of our correspondents intimate that turpentine and resin oil as well as alcohol, are employed for this purpose. It is our opinion this is not the case, because the turpentine and resin oil would greatly increase the tendency to become smoky—the very evil which we desire to avoid. Alcohol does obviate this evil; and were it not so volatile, it would be a valuable agent in artificial illumination. We are not acquainted with any test for detecting turpentine or rosin oils, if mixed with those of coal, There is such a variety of the latter that no test has yet been adopted for determining their purity, because we have as yet no fixed standard for them; and neither their smell nor color are positive indications of their qualities. The test for alcohol, in what are called "essential volatile oils," is the chloride of calcium, which may answer equally well for coal oils that contain no benzole. The way to use it is to place a small piece of the chloride of calcium in a test tube containing the oil, and to agitate it gently for a short period of time. If it contains alcohol, the calcium will dissolve in the fluid; if not, it will remain in its solid condition. As some chemists engaged in the distillation of coal oils assert that alcohol also comes off from the coal in vapor, with some benzole; of course, the above test is of no value if this fluid is combined with such oils. This is a question of a very complicated character, as the coal oils are a comparatively new manufacture, and there is doubtless much general ignorance reigning both among men of science and others in relation to them. There is here a wide field open for critical experiments by chemists who have time, means, and a good apparatus to conduct them, and we earnestly invite their attention to this subject.

Another Important Step in Science.

The Commonwealth Manufacturing Company, of this city, have shown us a new and very beautiful barometer, the invention of Mr. T. R. Timby, of this city, who has succeeded in rendering this instrument perfectly portable, (which we believe is the only one since the first conception of the barometer by Torricelli, a pupil of the celebrated Galileo more than two centuries ago,) and to demonstrate the practicability of his discovery Mr. Timby made his barometer his travelling companion in Europe, and finally expressed it from Paris to New York, without the slightest injury. This we regard as a practical demonstration of its portability, and we bespeak for it a speedy and universal adoption, especially among agriculturists, they more than any other class (save the mariners), need the counsel of this faithful monitor which leaves nothing to conjecture, but tells with promptness of the coming storm long before a threatening is visible in the sky. We are told that the above named company are now making this instrument upon a magnificent scale, and for a price that places them within the reach of the million.

Crompton's Loom for Fancy Weaving.

On the 25th of November, 1837, a patent was issued to William Crompton for a loom for weaving fancy and figured fabrics; it was afterwards extended for seven years by the Commissioner of Patents. In consideration of its value, and of the fact that Crompton was insane during a considerable portion of the term of the patent, his conservator, Edson Fessenden, applied to Congress for an "act of relief," in the shape of an extension of the patent. It elicited an interesting discussion in the Senate during its last session, a brief of which was published on page 317, last Vol., SCIENTIFIC AMERICAN, and the bill was passed, but it failed to come up in the House, therefore the Crompton loom is now public property.

The Atlantic Cable.

We have received a vast number of communications within the past few weeks in reference to the Atlantic Cable, and would gladly give place to them, if the suggestions were new and practically important at this time; but the public mind wants some rest on this subject, and we are disposed to favor this reasonable desire. By the last foreign mail we learn that the company had refused to allow Professor Whitehouse to carry on any more experiments, and had dismissed the electric staff connected with the cable at Valentia, and closed the premises. It would thus seem that the cable was pretty much "played out" in the opinion of its directors.

An interesting communication will be found on the next page from Messrs. Winans, of Baltimore, Md., defining the theories involved in the construction of their novel steamer, illustrated in No. 9 of our present volume. The length of the article should not deter our intelligent readers from giving it a careful perusal. In our next number we shall give some attention to this subject, not having the space to do so in this issue.

Our readers will bear in mind that the date given at the head of the "Patent Claims," as they are published weekly, corresponds to the exact date of the issue of the patent.