

Science Siftings

BY 'VOLT'

A Problem Explained.

The deep sea is blue because it reflects the blue rays of light; but shallow bodies of water seem green because this blue light is mixed with yellow reflections from the sand and stones at the bottom, green being a mixture of tints.

Match-using Expensive.

The American people use up the enormous total of 700,000,000,000 matches a year, but a statement of the number of cubic feet of wood actually converted into matches conveys a very indefinite idea of the number of trees required for the industry. It is the general belief that matches are the by-product of planing-mills and other wood-working factories, but as a matter of fact the best grade of two-inch lumber is used for matches, while sash, doors, and blinds are the by-products of the match-timber sawmills. In a single year the manufacturers cut 225,000,000 feet (board measure) of pine in the great lakes region; and one of the one hundred and fifty odd factories used up 200,000 feet of sugar or yellow pine logs every day. The deduction is that, in common with other industries of the United States depending upon existing forests, the match-makers are within sight of a shortage in the wood supply. When the present timber holdings have been depleted they, of course, cannot be duplicated in a generation, and the people of the United States may have to get along with fewer than 25 or 30 matches a day each as at present. In their insistent way they will probably demand that the practice of Germany and France be followed, that foresters plant and grow timber especially for matches. This could readily be done if forests were placed under management and were no longer left to run wild, and produce cordwood and brush to fall before the devastating forest fires, instead of growing merchantable timber.

A Giant Shed for Dirigibles.

Says Alfred Gradenwitz in *La Nature* (Paris, November 20):—

'The new balloon-house of the Zeppelin Company at Friedrichshafen, which is notable for its huge size, is destined to serve, not as a garage for aerostats, as has been frequently affirmed, but as an aerial workshop for aerial construction. Thus it has as an annex a great factory where the various parts of dirigible balloons will be made.

'The house is intended to shelter, during construction, two dirigibles of the largest type, and it has imposing lines (650 feet long, 100 feet wide in the lower part, and 65 feet high in the centre). Its form was selected with a view to reducing interference with the contents to a minimum, without endangering the stability of the building.

'To keep the space within, as far as possible, from the influence of the sun's rays and other meteorologic factors, which might cause rapid alterations of volume in the balloons and promote leakage of gas, the builders have chosen a covering for roof and walls, a substance of slight conductivity for heat, and so light as not to overweight the structure. The roof is made of a layer of cement 3 inches thick covered with rubberoid; the walls are of iron network. The longitudinal walls have a double layer of masonry with a non-conducting layer of air between. The transverse walls, which are made to operate as gates and are consequently of extreme lightness, are of galvanised iron on the outside and of cloth within, with an air layer between.

'In order to draw off quickly the gas that escapes while a balloon is being filled, there has been built at the top of the structure a lantern extending for its whole length, and, having a ventilator for getting rid of the interior air.

'That access to all points of a balloon in process of construction or repair may be as easy as possible, there have been placed at the sides of the structure portable working galleries extending along its whole length, and stationary bridges fixed on both sides of the hall.

'The Zeppelin Company required as an indispensable condition that the two ends of the building should be constructed so to give clear passage, in as brief a time as possible, to the balloon within. The portals were thus built large enough to permit the rapid opening and closing of a section 65 feet by 140 feet. This condition was the most formidable part of the work.

'The gates are operated by electricity; the surface of each include four sections, 65 feet high. The two central sections have the form of sliding doors and the two lateral ones that of folding doors.'

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NEW BOOKS

We have received from Messrs. M. H. Gill and Son, Ltd., Dublin, *The History of the Catholic Church in the Nineteenth Century*, by the Rev. Dr. McCaffrey, Professor of Ecclesiastical History in St. Patrick's College, Maynooth. In two volumes of over 1050 pages the learned Maynooth professor gives us a resumé of the progress, successes, and trials of the Church in all countries from the French Revolution of 1798 to 1909. To collect the materials for such a comprehensive survey of the events of an epoch-making period has been a work which necessitated wide reading, great patience, research, and industry, but still greater was the task to compress such materials into two volumes of moderate size. That the learned author has succeeded in producing a most useful and educative work no one can deny. In the first volume Dr. McCaffrey traces the history of the Church in France, the German States, Switzerland, Spain and Portugal, Poland and Russia, and Italy down to 1848, and then turns back and resumes the consideration of the fortunes of the Church in these same countries from 1848 to our own day. In the second volume he deals with the Church in Great Britain, Ireland, America (including the United States, Canada, Newfoundland, Mexico, and the various Central and South American States), and Australasia. The final chapters deal with Catholic Missions, Religious Orders, Theological Errors, Ecclesiastical Studies, Education, Socialism, and the Catholic Labor Movement. Of the 574 pages in the second volume nearly 170 are devoted to Ireland. The author treats of the repeal of the Penal Laws, Ireland from the Union until Emancipation, and from Emancipation to the disestablishment of the Protestant Church. As the fortunes of the Church have always been bound up with the question of education, and in no part of the world had there been more insidious efforts made by the ruling authorities to control education and thereby cripple the Church by poisoning the minds of the rising generation than in Ireland, Dr. McCaffrey has devoted considerable space to the subject of education in Ireland. In order to make the position clear he goes back to an earlier date than that from which his history starts. 'The history of Irish primary education during the latter portion of the eighteenth century and the beginning of the nineteenth (he says) is almost entirely taken up with the efforts of proselytising societies to destroy Catholicity in Ireland by capturing the education of the children. While the Catholics were either forbidden to erect schools, or prevented from doing so by legal restrictions, by the resistance of the landowners, and by general poverty and depression, immense sums of money were placed at the disposal of proselytising societies by individuals and by Parliament, with the aim of uprooting the Catholic religion. In some cases the objects were professed openly, in other cases proselytism was concealed under some specious name, but in nearly every instance the fears of the Irish Catholics were amply justified.' Dr. McCaffrey then enumerates the many classes of schools that had been established for the purpose of proselytism, secret or avowed. Regarding the results of Irish emigration on the progress of the Church in English-speaking countries in the nineteenth century the author in his preface says:—'It is mainly Irish Catholic emigrants and their descendants who have built up the Church in the United States, Australia, South Africa, and, to a great extent, in England, Scotland, and most of the English colonies. These emigrants introduced into those countries and developed a strong type of Catholicity. They were neither Liberals, always complaining of authority, nor Conservatives, striving against every reform. They had imbibed at home the true spirit of faith and loyalty to the successor of St. Peter, and they communicated this to their descendants.' A perusal of the chapters devoted to the history of the Church in France during the nineteenth century will give the reader a very good idea of the many trials which she underwent during that period, and he will also be able to understand the causes which have led up to the recent repressive and iniquitous laws. The Catholic reading public, or at least that section who have neither the time nor the opportunity to consult books dealing exclusively with the histories of the various countries dealt with in these volumes, owe a debt of gratitude to Dr. McCaffrey for his scholarly, comprehensive, and painstaking work. They have here in a compact form the history of the Church during a century remarkable for its material and social progress—a century which has witnessed a great growth of the democratic spirit—and they can contrast the position of the Church at the beginning of the nineteenth century, when the timid were oppressed with pessimism regarding the future, with its position at the close of the century, and see how she has adapted herself to the new spirit and the new conditions obtaining in the republic of the West and the progressive English-speaking colonies, in the German States, in Holland, and other countries, and find comfort and consolation in the knowledge that never before did her spiritual sway extend over greater numbers, whose loyalty and devotion are unquestioned. A comprehensive index of fifty pages considerably enhances the usefulness of the volumes as a work of reference. (Dublin: Messrs. M. H. Gill and Son, Ltd.; cloth, 1061 pages; price, 12s 6d.)

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