

A Visit to the Buried Churches in Cornwall.*

A ramble of about two miles over the sandhills from Perranporth brings us to the site of the far-famed buried churches of Cornwall. They are not at all easy to find, and the first time I went alone in search of them, I lost my way completely. So the second time, resolved not to be beaten, we secured the help of the gallant "Capt. Tom," one of the oldest inhabitants of the district, formerly the manager of a mining company, a great traveler, and a very well informed, excellent man. Under his guidance and in his most enjoyable company, we were without much difficulty personally conducted to the veritable ruins. A rather toilsome climb was soon rewarded by a glorious view of the Atlantic and of the country spreading far and wide, and ere long we came upon the object of our search—a little stone building, so sunk in the sand as to easily escape notice. It is simplicity itself; and yet to all English Christians, especially to churchmen, it is fraught with the deepest interest, as being all that remains of a real British church built either in the fifth century, by Piranus, or in the sixth, over his grave, in memory of one of the earliest preachers of the Gospel in Cornwall. He is said to have been one of twelve bishops consecrated by St. Patrick and sent over by him, if not in company with the Apostle of Ireland, to evangelize the ignorant natives of that part of England. He was of noble birth, being descended from the Princes of Ossory. His father was Lugneus and his mother was called Liadem. His Irish name was Kieran or Claran; for in this instance, as in many cases, the Irish "K" became "C" in Cornish. After many years of successful labor in Ireland and Cornwall, he is said to have been beheaded as a witness for the faith he had preached. He is supposed to have fixed his humble dwelling in this retired spot by the sea, yet within sight of the amphitheater which would be the general resort of the scattered inhabitants. We know little more about his life or work; but we are told on good authority that, "worn out with old age and infirmity, he called his children in the spirit around him, and having exhorted them for the last time, he commanded his grave to be prepared, and, he having descended into it with calmness, his spirit departed."

Most probably this oratory was erected over his remains. In the course of time the sand, swept along by the northwest wind from the ocean, gradually covered it out of sight.

Taking advantage of a stream which then rolled down the neighboring valley to the sea, and served as a barrier to the advance of the sand, the Christians of the place built another small church about half a mile from the site of the first, which lasted for some centuries, until the rivulet was diverted by the opening of a mine, and the sand began to accumulate again, so that this second church had to be rebuilt on a larger scale in 1420. The same fate threatened it in turn, and in 1803 the building was taken down, and its tower, porch, pillars, arches, font and other principal parts of it, were removed to the present site, about two miles off, in the center of the parish, still known as the church of Perranzabuloe, a singular name derived from sabulum, the Latin word for sand, and signifying "Perran in the sand." An ancient obelisk, surmounted by a Greek cross, still marks the site of the second buried church.

This most remarkable ruin of the first church was brought to light by Mr. Mitchell in 1835. The sand was carefully excavated, and then appeared the remains of the original building, much as they are now. These consist simply of an oblong framework of thick walls, of rough, unhewn stones, granite, porphyry, and slate, piled one upon another without mortar or cement; only sand and the china clay of the neighborhood being interspersed between the stones. When the ruin was first exposed to view, there was a low doorway with a stone moulding round it, which, contrary to either Norman or Saxon usage, was carried from the head of the arch down the sides, and the supports of the arch were perfectly plain, without capital or bases. This doorway fell to pieces within a fortnight after it had been excavated. Its principal fragments were laid up in the Truro Museum, while the rest was carried away by too curious visitors. There was also a window of the rudest form ever seen, measuring just 18 inches by 12. The floor was of china clay and sand, and was distinctly divided into nave and chancel. Stone seats were there, attached to the east wall, and there is still a stone slab, probably the original communion table, under which were discovered three skeletons, one without a head, which may have been that of St. Piran, and one of the others, that of a woman, most likely his mother, who is said to have been buried with him. A head, corresponding to the

* Extract from "A Ramble in Cornwall," by the Rev. William Bates, M.A., in the Fireside for March.

headless skeleton, was afterward found on the south side of the church. All this singularly agrees with what had been long before recorded by Camden, and has been drawn by him from very ancient sources. It is interesting to add that there are indications close by of a very old burial ground, where thousands of human bones have been brought to view, many of which, now in a very comminuted state, still lie bleaching on the hillside, as in the valley of dry bones that Ezekiel saw in vision.

NEW CIRCLE DIVIDER.

Most draughtsmen have found by experience that dividing a circle into a large number of divisions is a tedious and often disappointing task, because the smallest error in setting the dividers to the distance calculated is multiplied on the circumference by the number of divisions.

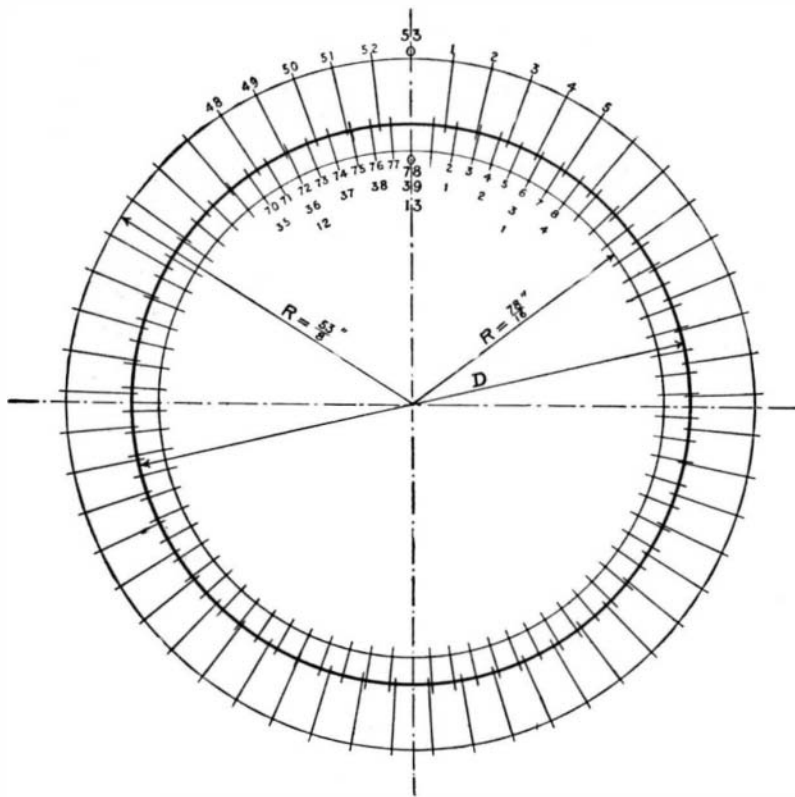
Several instruments have been devised for the purpose of dividing the circle, but they are either too high in price or too unhandy, and draughtsmen have generally preferred to calculate, use tables, or guess and take their chances.

The simple instrument here illustrated dispenses with calculating tables and guesswork and is, at the same time, a handy and practically correct device. It consists of two pairs of fixed needle points, marked 8 and 16 respectively, which are reversible on a little handle. The points are so spaced that any circle of the proper radius will be correctly divided into the desired number of parts. It is only necessary to draw an auxiliary circle concentric with the circle to be divided and of a radius of so many eighths or sixteenths of an inch as there are parts desired. The pair of points marked "8" or "16" will divide this auxiliary circle into the desired number of divisions, which are then projected on the circle to be divided.

For instance, a circle is to be divided into 74 parts: draw a concentric circle of $\frac{7}{16}$ inches (equal $4\frac{1}{8}$ inches). On this circle the pair of points of the instrument marked "16" will make 74 equal divisions; or the points marked "8" would divide the same circle into 37 parts, because $\frac{7}{8}$ inches



FISCHER'S
CIRCLE
DIVIDER.



METHOD OF DIVIDING A CIRCLE.

are equal to $\frac{7}{8}$ inches (equal $4\frac{1}{8}$ inches). This little instrument is very useful in designing gears, cams, chain wheels, conveyors, water wheels, etc. It is manufactured by Keuffel & Esser Company, No. 44 Ann Street, New York.

Successful Kite Signaling.

On Monday, July 5, some very successful experiments in night signaling by means of colored lights sent aloft on kite strings were conducted by Lieut. Wise, U. S. A., and Mr. William A. Eddy, of Bayonne, N. J. Lieut. Wise was on Governor's Island, and Mr. Eddy was at the New Jersey Oval, in Bergen Point. Mr. Eddy was unable to lift his signal to the high altitude he desired, but he succeeded in raising the lights to a height of at least 500 feet. The signals were perceived by Lieut. Wise on Governor's Island, eight miles away. Mr. Eddy burned red and green lights at stated intervals, and so alternated them that they formed a

code of signals. Lieut. Wise had no difficulty in locating and reading these signals. He replied with his own signals, which were not discovered by Mr. Eddy's assistants in time to permit the reading of the complete signal. The experiments were continued until almost midnight.

Ship Canal from the Baltic to the Black Sea.

Now that the Transsiberian Railway is far advanced toward completion, the Russian government is planning another great scheme which will outrival in political importance the Kiel Canal, says the New York Sun. It has always been considered by the Russian strategists as a source of great weakness that the naval forces of the empire should remain divided in such a way that one-half only, either the Baltic or the Black Sea fleet, could be available at one time. Between the north and the south there is no way for a naval concentration, communications being blockaded in the north by climatic and in the south by political obstructions.

There is a motto in maritime affairs that nothing can be improvised; everything has to be foreseen. It was with a clear understanding of this truth that the late Czar, Alexander III, gave instruction to his engineers to study the possibility of a maritime canal to connect the Baltic with the Black Sea; this canal to be constructed with dimensions sufficient for the transit of the largest war vessels. After a thorough study of the various possible roads, one has been selected as the most practical, running, as it does, entirely through Russian territory. On the plan selected there are no great difficulties of level to be overcome, although the European watershed summit has to be crossed, but this last takes place at one of its lowest points.

The proposed canal's entrance will be on the Gulf of Riga, at the mouth of the river Duna. It will follow the course of this river up to a point above Dunabourz. Then, leaving this valley, it reaches the Berezina River by a straight cut and passes through Babrouisk. This brings it into the Dnieper, and, following this natural declivity, it reaches the Black Sea, opening into a magnificent roadstead below the Kerson. The total length of this colossal waterway will be something like 1,600 kilometers (about 1,000 miles), and it will be excavated to a depth of $8\frac{1}{2}$ meters (about 27 feet). This will allow the largest ironclads to navigate it freely from one end to the other. The estimated cost is put down at \$500,000,000.

Its strategic importance does not need demonstration. By the selection of a course running at a safe distance from the frontier, it places back of the Russian forces stationed in Poland an unassailable base of operation. Fully protected already by a whole network of fortifications and railways, this canal is intended to act as a feeder for all the war material. As to the concentration of the whole Russian fleet in the Black Sea, this means an absolute control of Constantinople and the Straits.

But if this enterprise is of the utmost importance in a military point of view, it will also prove unquestionably very beneficial to the agricultural and industrial interests of the country. It places vast grain-producing regions in cheap communication with Odessa, the chief point of export, while the immense coal fields of southern Russia will come into easier connection with the industrial districts of Poland. There are reasons, too, to believe that new factories will develop along the canal on account of the cheapness of this new mode of transport. If this scheme has been adopted, there is no doubt that the Russian tenacity will bring it to success.

The Shoreditch Refuse Destructor Plant.

On June 28, Lord Kelvin opened the works established by the municipality at Shoreditch, England, which is designed to destroy the local refuse, generate electric light, and supply hot water to the public baths and laundries. Carts will convey the street, trade and household refuse to the works, where motor cars and electric hoists will distribute it to tipping platforms. Hence it will be shot by the aid of mechanical feeders into a dozen cells of the destructor. A forced draught is provided by motor-driven fans, some of which will exhaust an adjacent sewer and blow the gases therefrom into the furnace to help feed the flame. Steam generators and boilers will be used to drive the engines and dynamos and heat the water to be furnished to the baths and laundries. It is expected that 20,000 tons of refuse a year, which has formerly been carried out to sea at great expense, will be consumed annually in this plant. Lord Kelvin, in opening the works, described the project as an extremely happy union of scientific knowledge and mechanical skill, and said that it required remarkable courage in its application in this initial plant.

THE Rockefeller steamer Robert Fulton, 440 feet over all, is the largest steamer on the Great Lakes,