

where the arched verandah is extensively used, should afford some useful hints as to how to treat our large houses with piquancy as well as dignity. The most objectionable form that this most useful adjunct to a house has taken, and one peculiarly Australian, is that in which ornamental cast-iron is such an important factor. Every portion of these erections is as a rule a jar of the artistic nerve. When one comes across such examples as I have sometimes had the fortune to meet with in my walks, as, for instance, brackets composed of a few ragged cast-iron leaves, painted a brilliant green and forming a perch for a cast-iron cockatoo in natural colors; or, what is more common still, a verandah front representing a sort of nightmare of Ferntree Gully, one begins to look apprehensively at the gardens in fear of alighting on a crop of cast-iron shrubs. I do not wish you to understand that I think that cast-iron is a material which cannot be treated artistically, though as a matter of fact it very seldom is, and never when any attempt is made to copy the delicate and flexible forms of nature. The necessary slenderness of the supports, and the wide spacing of the posts, make a design in this material structurally unpleasant to the trained eye. From the consideration of this class of design, which will doubtless hold its own in this city for a long time to come, one can turn with relief to the simpler and less pretentious forms which are now beginning to show themselves in our suburbs. Of these developments one of the principal is that of the bungalow form, in which the sloping roof of the house is continued to cover the verandah also. With these designs the posts require to be simpler and heavy with simple cut brackets in keeping with the style. In this style, too, I should prefer to see a change in slope of the roof at the junction of the verandah and house roofs, to accentuate the position of the house walls and to take the apparent weight of the roof off the verandah posts. Glancing at some of the designs published in the American journals we find great variety of treatment, from the heavy roof supported on rough stone piers to the elegant Classic wooden columns and orders developed from the early colonial architecture of the country, and all having a substantial and well-designed appearance, so often wanting in the work here. In some cases the treatment of the verandah seems too fussy and the striving after the picturesque too obvious to be altogether pleasing, but there is great originality and careful thought shown in a great number of designs. It is noticeable that the continuous balcony is not a common feature, with the result that the main building stands up boldly, and is an object for architectural treatment of the boldest kind, whilst the verandah roofs coming lower down give greater protection and allow of better proportions than when the balcony is introduced. In the American work there is much more unity in design between house and verandah than is usually to be found in the work, resulting to a great extent from the substantial manner in which the former is carried out.

INCANDESCENT WIRING.

By C. W. Swoope.

THE proper installation of wires for carrying electric currents is a subject which has engaged considerable attention ever since electric lighting first became practical. Since this time it is of course natural that there have been progression and improvements in the methods of electrical distribution, as well as the manner of insulating the conductors. Insulation is the vital principle of the subject, and all efforts, which indeed have been many, interesting, and expensive, have been tending towards a perfect bridling of the "subtle fluid." For ordinary currents and voltages the present methods come very close to the object, but the subject is still fresh and unsolved in the minds of those experimenting with alternating currents of high potentials. The question is still asked by property owners, architects and builders, "Can electric lights be satisfactorily installed with safety from fire," and the answer comes without hesitation, "yes, if the underwriters' requirements are strictly fulfilled and the installation is put in by competent parties using the most modern appliances and material." Verily "competition has been the life of the electrical trade" in its true branches, especially in the manufacture of appliances and construction work, the former producing many forms and grades of apparatus to answer a single purpose, and the latter various modes of installation. Nearly all the difficulties and troubles in electric lighting stations or consumers' houses have been caused by defective wiring, and upon

this part of the system more than upon any other depends the success of the service. It is all well enough to require bids for this house or that, from the various contractors for the purpose of reducing the cost of wiring, fitting, etc., but the weak point heretofore has been not so strict specification requiring any special standard or systematic method of installation has been required. The consequence is that each contractor bids upon his own ideas of material, distribution and installation, the man performing the work for the least money generally being the successful competitor, which in many cases means, inferior material, poor workmanship and dissatisfaction. The insulation upon wires has been much improved in late years. In the early days of electric lighting wires were covered with cotton and coated with paraffine, much resembling our present bell wire, but this was found to be very inflammable, and in a short time it was replaced by a wire covered with cotton and white lead, and which is still known as Underwriter's wire, being then accepted by that body as a fire proof insulation and hence supposed to be safe. Later, however, it was found that it absorbed considerable moisture, causing leakage and fire by this means. "Protection against moisture meant prevention of fire," and accordingly our various rubber compound coverings made their appearance, and have developed into first-class but in some cases costly insulations. The tendency of the present time is not to place such expensive coverings upon wires, but to run them in conduits or tubes, which are lined with an insulating compound and covered with a metallic covering; protection from surrounding bodies being an insulation, as the word itself implies, bare wires of course being possible if entirely insulated. Wires were first run in tin or lead tubes, then cleated with wooden cleats or iron staples to girders, ceilings, walls, etc., in a promiscuous manner; later they were encased in wooden mouldings, or run upon porcelain insulators. Now, our standard wiring, from the points of safety, convenience, economy and, above all, accessibility, is undoubtedly the system of tubes or interior conduits. This is by far the safest and most reliable system, as a house can be tubed from top to bottom, with all necessary junction boxes impaneled in the walls, and the wires drawn through after the building has been completed, thus avoiding any broken wires, cut by nails or the plasterer's trowel. The advantages are many and obvious; the increased insulation or protection at a moderate expense, and the accessibility to all lines of repairs or removal, as one wire may be drawn from a tube and another readily inserted. The system of laying the tubes in a systematic manner is certainly a great advantage over the old way of running the wires in any direction, the rule generally being remembered that "a straight line is the shortest distance between two points," and, of course, requires the minimum amount of wire. The tubes are run in much the same manner as a line of gas or water pipes, and all forms of elbows, couplings, connectors, etc., are made for the various bends, turns, etc. With such a system the contractors are compelled to bid upon and furnish standard appliances and apparatus, the work is done in a more systematic manner and satisfaction and better service results.

—*Electricity.*

PERSONAL.

Messrs. W. J. Borrowages and Joseph Wright, two representative plumbers of Toronto, were recent visitors to New York.

Mr. Hamilton Killyit, C. E., who for many years was employed by the Dominion Government on the St. Lawrence canals, died a few days ago at Morrisburg, Ont.

The *Evangelical Churchman* pays the following tribute to the Christian worth of the late W. G. Storm: "It is not chiefly as a prominent and successful architect that we desire now to speak of him. It is rather as a Christian man. He was a member of the Church of the Redeemer, and at the time of his death was one of its lay delegates to the Synod. He took the deepest interest in all church matters. In his own church he was a zealous worker in connection with the St. Andrew's Brotherhood, and delighted in helping and encouraging his younger brethren to fight the good fight of faith. In that work his loss will be keenly felt. Mr. Storm was a strong advocate of temperance principles, and many a poor victim of the alcoholic temptation has found in him a sympathetic friend and helper. No one knows the amount of quiet good he has done in behalf of the helpless and needy. We extend our heartiest sympathy to his widow and family in their great affliction."

The Burlington Pressed Brick and Terra Cotta Company (limited), has been incorporated with a capital of \$30,000.