"CANADIAN ARCHITECT AND BUILDER" STUDENTS' COMPETITION.

WITH the object of promoting a feeling of friendly emulation on the part of students in the offices of members of the Province of Quebec and Ontario Associations of Architects which should result in improving the skill of the young men thus engaged, the publisher of the CANADIAN ARCHITECT AND BUILDER invites competitive designs for a suburban cottage to be occupied by a young man doing business daily in the city, owning the lot, possessing $2,000 in cash and having an income of $1,500 per annum.

The cottage is to be erected on an inside town lot having a frontage of 75 feet, a depth of 150 feet, and situated on the west side of the street.

There is required in the way of accommodation a parlor, small library, dining room and kitchen; cellar, suitable for heating apparatus and storage of fruit and vegetables.

On the first floor there are to be four bedrooms and bathroom.

The attic is to contain a servant's bedroom and store room.

The materials to be used shall be brick on a stone foundation.

There is no sewerage or water supply systems in the town, and the owner will have to dispose of all waste in the most sanitary manner, avoiding contamination of the soil from which he has to draw his supply of water.

Competitors are required to submit plans of the various floors, two elevations, unless accompanied by a perspective, when one will do.

Drawings must be made on sheets of heavy white paper or bristol board, 14 x 20 inches in size, and must be drawn sufficiently coarse to allow of their being reduced to one-half the above size. Drawings must be made in *firm, strong lines*, with *pen* and *black* ink. No color or brush work will be allowed. Each drawing must be marked with the *nom de plume* of its author, and the author's name, *nom de plume* and full address must accompany each drawing sent in. Competitors must also give the names of the architects in whose offices they are employed.

Drawings must reach the office of the CANADIAN ARCHITECT AND BUILDER, 14 King St. west, Toronto, not later than the 5th day of November next.

The right is reserved of publishing any design sent in. All drawings will be returned to the authors within a reasonable time after the competition is decided.

The first premium will be $15; second, $5; third, one year's subscription to the CANADIAN ARCHITECT AND BUILDER. A premium of $5 will be given for the best perspective sent in. The decision as to the respective merits of the designs submitted will be made by Mr. Thos. Fuller, chief architect, Department of Public Works, Ottawa, which decision will be final.

This competition is confined to students practising in the offices of members of the Province of Quebec and Ontario Associations of Architects.

TO CORRESPONDENTS.

IF the correspondent who sends us an enquiry signed "Subscriber" will comply with a well known journalistic rule by forwarding his name and address (not for publication), his question will receive attention.

A great deal of ingenuity is being expended upon machines and devices for sawing stone directly out of the quarry, and while thus far no positive success has been achieved, several machines are so near it as to suggest that the time is not far off when the result will be reached. Success would revolutionize and greatly reduce the expense of quarry working, and this in a time when there is so much competition in building materials, many of which are displacing stone, owing to superior cheapness in first cost, would be a boon to the quarry interests. The channeller, however, as yet stands as the only practical every-day quarry machine, but invention is after it with an energy that bids fair to be successful in no great time.

SPECIAL NOTICE TO CONTRACTORS.

THE special attention of builders and contractors is directed to a series of articles to be published in the "CANADIAN ARCHITECT AND BUILDER," and which are being prepared by a properly qualified quantity surveyor, with the object of instructing master builders and contractors in the methods of taking off quantities and arriving at a true estimate of the cost of erecting various kinds of buildings.

Designs and specifications of a dwelling, church, store, public building, etc., will be published, and practical illustrations given of the method of arriving at the quantities of materials pertaining to each of the several trades.

The value of this information to every contractor will be at once apparent. It will serve to replace the hap-hazard methods of estimating at present largely practiced, and which are responsible for many of the failures in the building trades, by a system which can be relied upon as being accurate.

This series of articles will be commenced in the CANADIAN ARCHITECT AND BUILDER for November, and will probably extend over a period of from one to two years.

For the usual subscription price, $2, the CANADIAN ARCHITECT AND BUILDER will be sent to new subscribers from November of the present year to the close of 1892.

Every contractor who desires to profit by the information given in this series of articles should at once become a subscriber.

THE BUILDING TRADES IN MODERN PRACTICE.

BY GEORGE H. BLAGROVE.

THE different densities of building materials have been studied with reference to the weight of their materials, their resistance to crushing, and their power of absorbing water. We frequently employ a harder and denser species of bricks in foundations than elsewhere, but beyond this there are few attempts made to dispose the materials of a building according to their density, for structural reasons. If materials of different densities are found in various parts of a building, it is usually with regard to their external appearance that they are so arranged. Yet it would not be difficult to design a large building in such a manner that the weight of its materials should be diminished towards the top, not so much by reducing the thickness of its walls as by the employment of lighter materials in their construction, thus combining the advantages of diminished weight with those of statical stability. In damp situations, the denser materials are generally preferred on account of their non-absorbent character, but the reason for this preference disappears when the outer surface is vitrified or otherwise rendered impervious.

Hollow walls, for the exclusion of damp, allow us to vary our materials on the interior and exterior, while the air-space serves for protection against changes of temperature. If we build one section of our hollow wall of substantial thickness, the other being only a half-brick or thin stone casing, and the two being connected by means of galvanized iron bonding cramps, the question arises whether the greater or lesser thickness should be placed outside.

It has been maintained by some that the greater thickness should certainly be placed on the outside, because it allows less damp to find its way into the cavity, such damp being quickly evaporated by the warmth of the dwelling. On the other hand, it has been pointed out that under such an arrangement the greater section of the wall must be permanently charged with damp, with disastrous results to any woodwork connected with it, and that if the cavity is to be dried by the warmth of the dwelling this can only have the effect of drawing the damp inwards, to the detriment of health and the destruction of wall paper. It is contended that these evils are avoided by placing the smaller section outwards, where, if it is the sooner penetrated by damp, it is the sooner dried in warm weather. Some are in favor of ventilating the cavity, for the purpose of keeping it dry, while others contend that this at once destroys the advantage of protection against rapid changes of temperature. It has often been found, however, that the cavity in a hollow wall, when it has no outlet, contains an accumulation of moisture, which gradually soaks through the inner section to the interior of the building. The cavity, if not ventilated at top and bottom, should have outlets for moisture at the bottom; and some persons go so far as to require that a cement splay be formed at the bottom of the cavity to throw the accumulated moisture outwards. It is certainly a good plan, where doors and windows occur, to introduce sheet lead at the head of the opening, the lead being turned up on the inside and down on the outside, so as to afford protection to plates and lintels.

As to the difference in cost between solid and hollow walls in brickwork, it has been calculated that where the inner and outer sections and the intermediate cavity are each of the same width, there is a saving of one-third in the number of bricks and one-half in mortar. The cost of cramps, or any other special means of bonding, must be added, and as the resistance to thrusts, the resistance being augmented by 20 per cent. in weight over brickwork. We have a substance which precludes damp more effectually than most kinds of stone, and which enables us to cope most satisfactorily with the modern increasing demand for rapid execution in building. We cannot urge much in favor of the external appearance of concrete walls, but with brick and terra cotta quoins, copings, window dressings and other accessories, there should be ample opportunity for the production of artistic effects. One of the objections raised against concrete buildings has been that they are difficult to pull down. This objection may commend it to the attention of those who will regard it rather as an advantage than otherwise. —*Specialties.*