

and forming a cool, spacious piazza. The chimneys top out above weathered gray roof with red brick. The interior greets you with a cozy, spacious hall, with open fireplace under the stairs, which have ash balusters and rail and paneled square newel. The wall is tinted terra-cotta. The dining-room has angle fireplace, faced with light brick, and festoon frieze over mantel; also convenient china closet, neatly designed for the corner. The parlor, connecting with dining-room, has a similar fireplace and delicately tinted walls. The kitchen, with an entrance to cellar, and from back stairs onto main landing, contains dresser and usual plumbing fixtures; also provided with convenient porch entrances from the side and rear of house, as well as through butler's pantry to hall, etc. In the second story, two chambers are provided with healthful open fireplaces, and each of the chambers being arranged with ample closet room, exclusive of liberal linen closet in hall. The bathroom is fitted up neatly with exposed plumbing work and fixtures as shown.

Our engraving was made direct from a photograph of the building, taken specially for the SCIENTIFIC AMERICAN.

#### A PAIR OF ROUND-TOWER HOUSES AT PELHAM, PA.

The engravings on page 84 illustrate a pair of round-tower houses, of Spanish treatment, which have been erected for Messrs. Wendell & Smith, at Pelham, Pa. The design presented has some excellent features, including a spacious piazza, which is separated in the centre, thus giving privacy to each house. Another feature in the plan is the great amount of light, and thorough ventilation obtained in all the rooms, and though a pair of houses, each house has nearly all the advantages of a single house in this respect. The exterior is treated with a rock-faced stone base, with terra-cotta and Indiana limestone trimmings. The building above the stone base is covered with rough-cast plaster. The roofs are shingled and stained a dark brownish red. Dimensions: Front, 65 ft., including the width of both houses; side, 59 ft., not including piazza. Height of ceilings: Cellar, 8 ft.; first story, 10 ft.; second, 9 ft.; third, 8 ft. 6 in. Both houses being alike, a description of one only is presented. The entrance is into a large reception hall, trimmed with oak, and provided with a paneled wainscoting, a corner fireplace, built of Pompeian brick, and a broad staircase, with seats and windows at side; a toilet is provided under stairway. The parlor opens from hall with a wide, square-headed opening, with columns in same; it is trimmed with oak, and connects with the dining-room, with sliding doors. The dining-room is trimmed with chestnut, and is an attractive apartment, with a bay window with seat under same at one end of room; at the other end a bay window with windows high up, with sideboard built in under same. The butler's pantry, kitchen, and laundry are trimmed with yellow pine, finished natural, and are furnished with all the best modern improvements. The second floor is trimmed with white pine, stained and painted; it contains a good-sized hall, with large hall window and seat in the long passageway, three bedrooms, large closets, library, and bathroom, the latter wainscoted and furnished with porcelain fixtures and exposed plumbing. The library is provided with an open fireplace, built of Pompeian brick, with hearth and facings of same. The third floor is trimmed with white pine, and finished natural; it contains one large billiard-room, one guest bedroom, servants' rooms, linen closet and trunk-room. Cemented cellar contains furnace and other necessary rooms. Cost \$12,000 complete, exclusive of grading and furnace. Messrs. Keen & Mead, architects, 1420 Chestnut Street, Philadelphia, Pa.

Our engravings were made direct from photographs of the building, taken specially for the SCIENTIFIC AMERICAN.

#### A MODERN DWELLING AT SCRANTON, PA.

The engraving on page 85 illustrates a modern dwelling, which has been erected for Mr. Thomas J. Conway, at Scranton, Pa. The design is well treated, and has many excellent features. The underpinning is built of rock-faced bluestone. The exterior framework above is covered with sheathing, paper, and clapboards, and is painted a light gray with white trimmings. The roof is covered with shingles and stained a moss green, with a mottled effect. Dimensions: Front, 34 ft. 6 in.; side, 48 ft., not including piazza. Height of ceilings: Cellar, 7 ft.; first story, 9 ft. 6 in.; second, 8 ft. 6 in.; third, 8 ft. The hall, entered through a lobby formed by an archway, is trimmed with oak. It contains an ornamental staircase turned out of similar wood, and lighted by windows glazed with stained glass. There is also a nook under the stairway with seat and windows. The parlor is of good dimensions, and is trimmed with oak, quartered, and contains an open arched effect, with sitting-room, which is formed of colonial columns. Both parlor and sitting-room have open fireplaces, furnished with tiled facings and hearths, and colonial mantels. The dining-room is also trimmed with quartered oak, and it has a china closet built in, and a nook for buffet provided with stained glass windows, which shed a pleasant light over dining-room. The kitchen

and its apartments are trimmed and wainscoted with yellow pine, and are fitted up complete. The second floor is trimmed with poplar, finished natural, and it contains six bedrooms, linen closet, and bathroom, the latter being wainscoted and furnished with the usual fixtures and exposed nickelplated plumbing. The third floor contains three bedrooms and ample storage. A cemented cellar contains furnace, laundry, and other necessary apartments. Cost, \$4,500, complete. Mr. Percival J. Morris, architect, Connell Building, Scranton, Pa.

Our engraving was made direct from a photograph of the building, taken specially for the SCIENTIFIC AMERICAN.

#### A SUMMER HOUSE AT WOODMONT-ON-THE-SOUND, CONN.

We present, on page 79, an illustration of a summer house, which has been erected for Mrs. Celia M. Usher, at Woodmont-on-the-Sound, Conn. The elevations which are shown in the engravings are attractive in design, and combine many excellent features, including a spacious piazza and balcony. The house has two entrances, one from the side and another from the front. The underpinning is built of rock-faced boulders picked up from the shore, so that the weathering colors are retained. The building above is constructed of wood, and the exterior framework is sheathed and then covered with paper and shingles, the latter being painted a light gray color. The roof is shingled also, and painted a dull green. Dimensions: Front, 39 ft.; side, 30 ft. 6 in., not including piazza. Height of ceilings: Cellar, 8 ft.; first story, 9 ft.; second, 8 ft. The interior throughout is trimmed with yellow pine, finished natural with hard oil. The walls and ceilings are ceiled up with narrow beaded yellow pine. The living-room is a spacious apartment, and it contains an open fireplace, built of brick, with hearth and facings of same, and mantel, and also an ornamental staircase, with newel posts and rail. The dining-room is well lighted, and is provided with a large butler's closet, which is fitted up with closet, bowl, and dumbwaiter to cellar. The second floor contains four good-sized bedrooms and ample closet rooms. The cellar contains a laundry, kitchen, pantry, and other necessary rooms. The servant bedrooms are also provided on this floor, the site being well adapted for such uses. Mr. Usher was the architect, West Haven, Conn.

Our engravings were made direct from photographs of the building, taken specially for the SCIENTIFIC AMERICAN.

#### A RESIDENCE AT HOLYOKE, MASS.

We present, on pages 80 and 81, an illustration showing a residence recently completed for Edward P. Bagg, Esq., at Holyoke, Mass. The design is well treated, and executed in the modern style of architecture, and it combines many excellent features. The underpinning and first story are built of Marlboro, N. H., granite, rock-faced, and with a greenish gray color, while the trimmings are of dressed stone. The exterior framework above this stonework is covered with sheathing and shingles, and is painted a greenish brown color. The roof is also shingled. Dimensions: Front, 48 ft.; side, 72 ft., not including piazza. Height of ceilings: Cellar, 8 ft.; first story, 11 ft.; second, 10 ft.; third, 9 ft. The interior is finished in a most excellent manner. The entrance at front is through a vestibule, with a tiled floor and oak trimmings. The reception and staircase halls are trimmed with oak. Both have paneled wainscoting five feet in height, and a paneled ceiling. These halls are separated by an archway supported on columns with carved capitals. The staircase is of handsome design, with carved newels, posts, balusters, and rail, and paneled seat. The toilet-room is also a convenience. The reception-room is trimmed with birch, and it has an open fireplace trimmed with tiled hearth and facings, and mantel of excellent design, with carvings and mirror. The parlor and library are trimmed in a similar manner, and the latter has an open fireplace, with tiled trimmings. The den is trimmed with oak, and contains an open fireplace and stationary bowl. The dining-room is also trimmed with oak, and it has a paneled wainscoting and a beamed ceiling, and also a fireplace trimmed with tiles and a carved mantel. Buffets are built in on either side of fireplace, with cupboards and closets inclosed with leaded glass doors. There is also a nook at side for sideboard. The butler's pantry, store pantry, and rear hall are trimmed with ash, while the kitchen and servants' dining-room are trimmed with Norway pine. These rooms are provided with the best modern fixtures. A refrigerator is built in, with an outside entrance thereto. The kitchen has a large brick hearth and a brick back for range. The second floor is trimmed with birch, oak, and Norway pine. It contains a large open hall, sewing-room, four bedrooms, two servant bedrooms, nursery, storeroom, dressing-rooms, two bathrooms, and twelve closets. The bathrooms have floors paved with tiles, and wainscotings of white enamel tiling, porcelain fixtures, and exposed nickelplated plumbing. The fireplaces where shown have tiled trimmings and mantels. The third floor is trimmed with Norway pine, and it contains a large billiard-room, two bedrooms, and ample storage room

A cemented cellar contains furnace, laundry, etc. Messrs. Clough & Reid, architects, 280 High Street, Holyoke, Mass.

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#### A COTTAGE AT SEA GATE, LONG ISLAND.

We illustrate on page 83, the summer cottage of William P. Rae, Esq., at Sea Gate, Long Island. The design presented shows a very artistic cottage with many excellent features, treated in the half-timber style. The soil being a sandy one, there are no stone foundations; the building rests upon locust posts, and the outside walls of the cellar are formed by having matched stuff nailed on at the outside of posts, while the bottom is cemented. The exterior framework above is sheathed, the first story being clapboarded, while the second is shingled and beamed, the panels being filled in with clapboards. The whole is painted cream yellow, with white trimmings. The roof is shingled and finished natural. Dimensions: Front, 36 ft.; side, 28 ft. 6 in., not including piazza. Height of ceilings: Cellar, 6 ft. 6 in.; first story, 9 ft.; second, 8 ft. The walls and ceiling throughout are ceiled up with narrow beaded yellow pine, finished natural and oiled. The walls are finished at ceiling with a hardwood cornice. The hall contains an ornamental staircase, with newel posts, etc. The parlor is provided with an open fireplace, furnished with tiled hearth and facings rising up to ceiling, and a mantel of excellent design. The dining-room, of good dimensions, is provided with an attractive nook, with paneled divan, and a fireplace built of Tiffany brick, with hearth and facings of same, the latter capped with a wood mantelshelf. The kitchen and its apartments are furnished with the usual fixtures complete. A bicycle-room is also a feature of this floor plan. The second floor contains two bedrooms, servant's bedroom, den, and bathroom, the latter wainscoted and fitted up with porcelain fixtures and exposed plumbing. Messrs. Parfitt Bros., architects, No. 26 Court Street, Brooklyn, N. Y.

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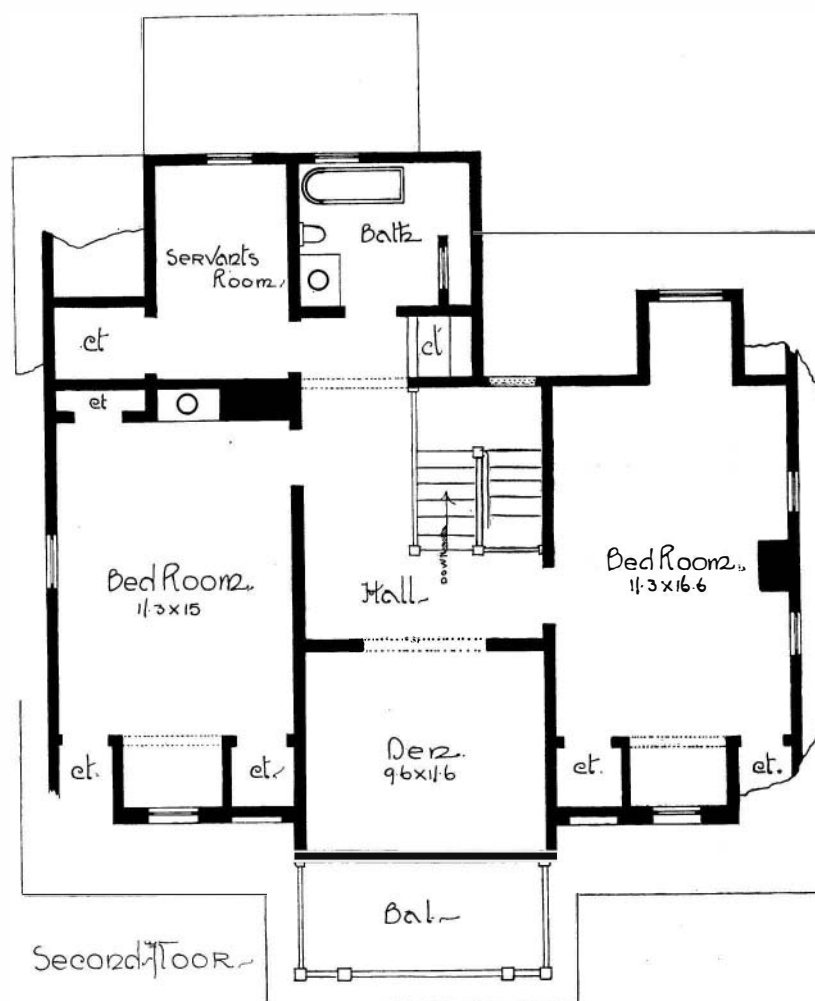
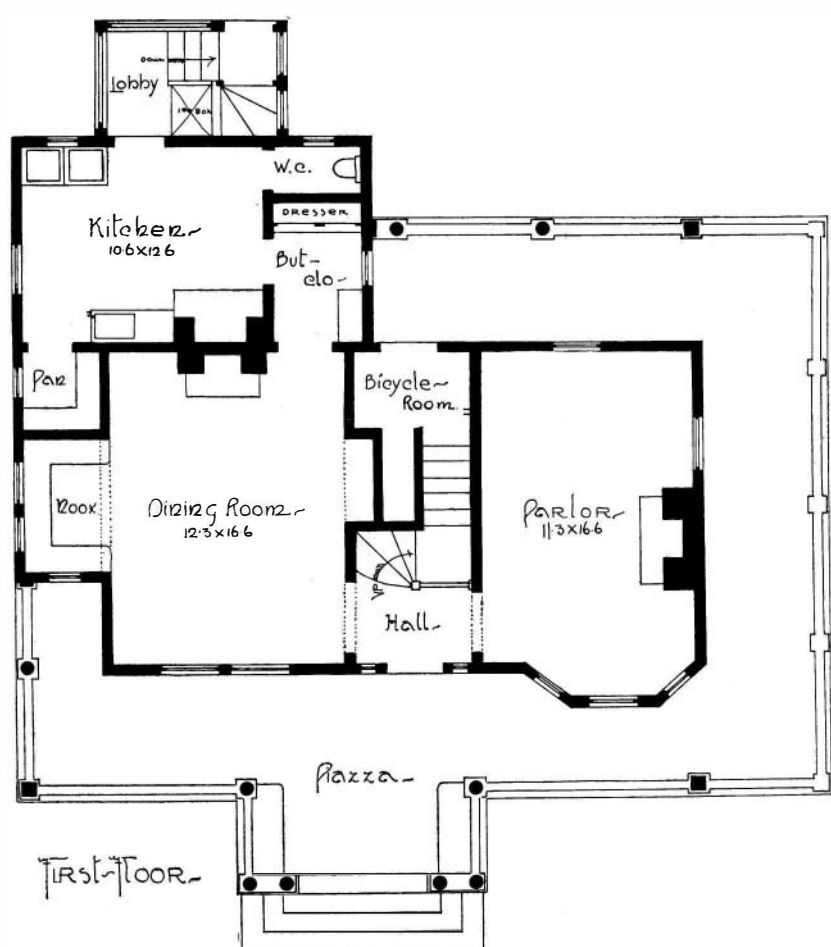
#### A HOUSE AT NUTLEY, N. J.

This building, page 78, which is covered with a gambrel roof, is without the usual veranda, though a roomy entrance porch is shown. This arrangement gives the front rooms the benefit of all possible light. The sides are covered with clapboards, the roofs with shingles. There is a large porch in the rear which connects with main hall and adjoins parlor; there is a smaller porch on the side giving entrance to kitchen, from which open a water closet and convenient closet. The parlor and dining-room are on opposite sides of main hall, the latter connected to kitchen by butler's pantry. The stairs to the basement are convenient to kitchen door, through which also access is given to main hall. The second story is divided into four chambers and bath, which contain basin, water closet, and bath tub. Each chamber has at least one closet, and a well lighted attic gives considerable space for storage, servants' rooms, play-room, etc., and is reached by stairs over principal staircase. The exterior is painted silver gray. It was designed and executed under supervision of E. R. Tilson, architect, New York City, at a cost of \$3,900.

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Mr. J. H. KINEALY, an American engineer, has found that the increase of temperature of the air in a heated room varies from  $\frac{1}{2}$  to 2 degrees for each foot of height above the floor, and that for rooms about 12 feet in height the average temperature of the air may be taken as equal to the temperature measured 4.5 or 5 feet from the floor. When a room is heated by hot air, it is probably safe to say that, when the temperature of the air in the room is 70 degrees 5 feet above the floor, the temperature at a distance  $h$  from the floor is about  $65 + h$ . If  $h$  is taken as the height of the ceiling above the floor, the average temperature between the floor and the ceiling

is about  $65 + \frac{h}{2}$ . For work in connection with ordinary dwellings or schools, it makes very little difference whether a high wall or window transmits more or less heat per hour than a lower one of the same kind and thickness, as the walls of the rooms are usually not much higher than 12 feet, and the average temperature of the air is about the same as the temperature observed about 4.5 or 5 feet above the floor. But for work in connection with churches and other buildings in which the heights of the rooms are quite great it becomes important to know whether the heat loss of a high wall is or is not different from that of a lower wall of the same kind, area, and thickness; and if the heat loss is not the same for the high as for the lower wall, it is of the utmost importance to know whether it is smaller or greater.



A COTTAGE AT SEA GATE, LONG ISLAND.—See page 88.

MESSRS. PARFITT BROTHERS, ARCHITECTS.