THE SOUTH AFRICAN ARCHITECTURAL RECORD

THE JOURNAL OF THE TRANSVAAL, NATAL AND ORANGE FREE STATE PROVINCIAL INSTITUTES OF SOUTH AFRICAN ARCHITECTS AND THE CHAPTER OF SOUTH AFRICAN QUANTITY SURVEYORS.

Vol. XIII. No. 49. MARCH, 1928

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Annual Subscribtion per post 5s., direct from the Business Manager.

Hon. Editor—A. Stanley Furner. Business Manager—Murray K. Carpenter.
67, Exploration Buildings, Commissioner Street, Johannesburg. P.O. Box 2266. 'Phone 5821.

ENTRANCE DOORS AND FANLIGHT AT "MYMERING," MUIZENBERG.

Walgate & Elsworth, Architects.

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THE SOUTH AFRICAN ARCHITECTURAL RECORD

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THE OLD DOMESTIC ARCHITECTURE OF CAPE TOWN.

CHARLES H. N. MERRIFIELD.

The period of Architectural development known as "Cape Dutch" has formed the subject of several writers' appreciation and praise, but in the main information to be gleaned from a study of their works, while of great interest to the dilettante and amateur, affording a great fund of information upon the historical, sentimental and even legendary association of individual examples, is of comparatively little value as an accurate record of the Architecture of the period or a chronologically consistent review of the development of the style. While valuable work has been done among the Farmhouses or Homesteads in the surrounding districts and measured drawings of the more important examples are available, the domestic architecture of Cape Town itself has been allowed to languish in neglect for a long period of time during which many of the finest examples of the period have been swept away to make room for the modern development of the City, which, situated on a site of unrivalled beauty but with severely limited room for expansion, has no predetermined town plan governing the City's development. The best and most characteristic work was done during the eighteenth and the beginning of the nineteenth centuries. Of the few remaining examples of the period, there is still sufficient material worthy of comprehensive study and record. While it is impossible to deal adequately with the subject within the limits of this thesis, the author intends that it should be a general survey and an appreciation of this neglected period; there is still much to be done, for it is unthinkable that we should fail to embrace the opportunity to preserve by accurate data and records these charming fragments of a virile Urban Architecture against the day when the rapidly disappearing tangible forms shall have finally passed beyond our ken.

There are some who deny that "Cape Dutch" has any claim to survive, arguing that it is merely an indifferent off-shoot of the Flemish Renaissance with rather more than a hint of rococo in its detail; and who in the same breath cry aloud for a "National Style" indigenous to the country, expressing the needs of modern life, social and civic, taking account of climatic conditions and the possibilities of local materials. At the present time the chief outward and visible signs of their philosophy consist of curved plastered gables and cast cement columns which have long since lost all resemblance to their European prototypes, reproduced *ad nauseam* over the length and breadth of the country; intruding like an insidious growth into the towns, details which have long since lost all beauty of form and suitability of purpose in the process of slavish copyism through which they have passed. The style of the buildings of which this paper treats might, if developed to its logical conclusion, form a sound basis upon which a modern South African style might be built.

The simple charm of these old houses has much to recommend them and the motifs used in their design are admirably suited to present day requirements where directness and simplicity are the key-notes set by economic necessity.

The history with which we are concerned may be taken as from the end of Simon Van der Stel's term of office in 1699, to the end of the first British Occupation in 1803, when the Cape reverted to the Batavian Republic by the Treaty of Amiens.

The period opens with Adriaan Van der Stel's term of office eleven years after the landing of William of Orange in England. The new Governor, son of Simon Van der Stel, was like his father, an able man though something of an autocrat. He was keenly interested in the development of the Colony, an object for which he worked with great zeal and enthusiasm to further. He, however, unfortunately became extremely unpopular with the Settlers, who complained that he was mean and avaricious and attempted to play the "master over all." The story of his downfall is too well-known to be repeated; he was recalled in 1707. As a result of this upheaval the Council of Seventeen ordered that their officials should not have land larger than a garden or engage in trade. A virulent epidemic of smallpox broke out in 1713 carrying off one-fourth of the population. This occurred between the death of the Governor Louis Van Plettenburg, 1708-1711, and the arrival of Governor de Chavonnes in 1714. There is little of importance to record of this period, 1714-1724. The Governor laid the foundation stone of the Chavonnes Battery in 1715, and in 1716 news of the death of Louis XIV was brought by the ships from Holland. Chavonnes died in 1724 and was succeeded by Pieter Gysbert Noort,

1727-1729. The Chief Merchant de la Fontaine became Governor in 1730, and retired to Holland in 1736. A violent storm in 1737 resulted in the loss of eight Indianmen at that time anchored in Table Bay. Hendrik Swellengrebel was appointed Governor in 1739 and held office until 1751. The chief events of this period were the building of churches at Tulbagh and Malmesbury, in 1743, and the formation of the district of Swellendam, in 1746.

It was about this time that the decline in the power of the Dutch East India Company resulted in a change of policy which had a far-reaching effect upon the history of the Cape. Foreign ships were now welcome and every possible opportunity for trade was seized upon to counteract the rapidly diminishing profits, and the population as a result of this reversal of policy became thoroughly cosmopolitan. Swellengrebel was succeeded by Ryk Tulbagh in 1751 and for twenty years the country enjoyed an unparalleled prosperity. The Cape, now an open port, became an invaluable source for the supply of fresh provisions to the English and French Indiamen. In addition to this, bribery and official trading, which had caused such discontent among the people for many years, were forbidden and the taxes were light. In 1755 the Council of India issued the Sumptuary Laws in an attempt to check the tendency to luxury and ease as a consequence of the presence of inferior races who performed most of the manual labour. Tulbagh favoured these laws although they were hardly necessary at the Cape where the inhabitants were not particularly wealthy. In 1755 smallpox again made its appearance resulting in two thousand deaths in Cape Town alone.

During Tulbagh's rule many improvements were effected; and the architecture of the town probably reached the flood tide of its development at this time. The Watch House or Town House was built in 1755 and the Lutheran Church and Parsonage completed in 1774.

Tulbagh died in 1771, and with his death the best and most prosperous period of the Company's rule ended.

Governor Joachim Van Plettenburg, 1771-1785. During this rule official bribery and trading were again common and general discontent reappeared. In 1779 the farmers presented a petition for free trade to the Council, and again as in 1672 their request was refused.

Anton Anreith, a native of Freiburg in Breslau, arrived in 1777 as a soldier in the service of the Company and served for fifteen years as sculptor.

Consequent upon the declaration of war by England against France and Holland, in 1782, an English fleet was sent out to seize the Cape; but the purpose of the expedition was disclosed to the Dutch by a spy and French aid was invoked. The French government immediately despatched a fleet to defend Cape Town. Overtaking the English fleet at the Cape Verde Islands where they were taking in water, the French Admiral attacked and partially disabled them; then, proceeding to the Cape, he landed two thousand French troops at Simon's Bay and marched to Cape Town. When the English fleet arrived they found the town so strongly defended that the commanding officer, Commodore Johnstone, dare not attack it.

During this war the Company suffered such severe losses that it ceased to pay dividends and became greatly embarrassed; paper money was issued but gradually declined in value until the Rijksdaalder, originally equal to about four shillings, was worth only eighteenpence.

The sudden influx of such a large body of French troops to garrison the Cape appears to have had a profound influence upon the architecture and the mode of living; the change can be distinctly traced in the character of the detail, the plaster enrichments and the modelling; and it is very probable that at any rate in Cape Town and the vicinity, the features so often attributed to the influence of the Huguenots who arrived in 1688 in reality belong to this period.

Further evidence may be deduced from a consideration of the treatment of the Huguenots upon their arrival. Simon Van der Stel was Governor at that time and had very little sympathy with the new arrivals; they were given land in the then new district of Drakenstein and at Fransche Hoek, situated about forty miles from Cape Town by road. The Company had given instructions that they should, as much as possible, be mixed with the Dutch Colonists and the children taught nothing but Dutch; these instructions were rigorously enforced by Van der Stel.

Compare with this treatment the conditions at the Cape after the arrival of the French fleet and it at once becomes evident that the latter event was of far

Photo *N. Hanson.*

greater importance in the history of the architecture. Mentzel's description of the Cape in Chapter XVI refers to the influence of the French garrison and reprints a portion of an article which appeared in the third issue of the "Berliner Monatschrift" for 1784, giving an account of a visitor's impression of the Cape; to substantiate his statement, the article is headed "At the Cape of Good Hope," and dated 1783. The writer states that French and English is spoken fluently by the womenfolk and remarks, "It is not surprising to find French styles in great vogue, for is not the Cape almost a French dependency?"

The Company's rule was now jeopardised by two forces, foreign attack and the discontent of the people which threatened to break out into open rebellion. The man chosen to be Governor at this difficult time was Jacob van de Graff, 1785-1791, and he only succeeded in increasing the discontent. The district of Graff Reinett was formed in 1786. In 1790, the Company was forced to reduce expenditure considerably. The troops were removed to Java, the work of fortifying the Cape discontinued, the Governor's country house was sold and he himself recalled to Holland. In 1792, Nederburgh and Frykenius were sent out as Commissioners General to investigate the affairs of the Company and endeavour to save an impossible situation; this they soon discovered was a hopeless task, and in 1793, when Abraham Sluysken called at the Cape on his way home from India they persuaded him to accept their office and retired to Java.

In 1795 the people of Graff Reinett and Swellendam openly rebelled against the Company's authority, expelled their Landdrost from the district and proclaimed a Republic. Sluysken was powerless to restore order; the treasury was empty and the town threatened to follow the example of these districts. In the meanwhile a French Army invaded Holland and readily subdued it. The Patriot party in sympathy with the French Revolutionists, set up a new Government and called their country the Batavian Republic. The Stadtholder escaped to England and asked the English Government to hold the foreign possessions of Holland in trust until conditions were more settled and in June, 1795, an English fleet of eight ships arrived in Simon's Bay. A despatch from the Prince of Orange to Sluysken, commanding the admission of the British troops was duly presented but most of the people were in favour of the Batavian Republic and declined to recognise the authority of the Stadtholder. After fruitless negotiations, the arrival of a second fleet with 3,000 troops strengthened the British General's position; a strong force marched to Cape Town and after some skirmishing on the road reached the Castle, where Sluysken seeing that further resistance was useless surrendered. In this manner, after a career of one hundred and forty three years, the rule of the Dutch East India Company came to a close. Thereafter for six years the Cape was under British protection; in 1796 the Batavian Republic made an unsuccessful attempt to regain the Cape and by the Treaty of Amiens the Colony was returned to the Batavian Republic in 1803.

The continuity of the tradition which had produced the architecture of the last century was broken and the style never regained its full vitality although it lingered on for a number of years. Other influences began to appear and some excellent Georgian examples are to be seen in the more modern quarters of the town.

The essential point of difference between the town house and the homestead is the fundamental one of the restriction of a limited site as compared with the greater freedom of open space with its opportunity for compositions in mass and the grouping of several units into a coherent layout. In an analysis of the design of the town house, we have, therefore, to deal almost

Photo *A. Elliott.*

exclusively with two dimensions, in which design was necessarily confined to careful proportioning of facade, of relating solid to void and to the study of detail, for which the temperament of the builders was so admirably suited. The foregoing statement does not intend to imply that this style was developed by a people unable to deal with the larger problem when such were encountered, on the contrary, the homesteads furnish abundant evidence of a very high standard of design in grouping and mass, together with a good taste so general as to cause our admiration to be tinged with perhaps a modicum of regret that this merit should have ceased to be what it was apparently at that time, a common attribute.

There are four main types of town house into which nearly all the examples can be classified. The first is the small single-storey structure usually with a central door flanked on either side by one or more windows. The sub-divisions of this type consist of the difference in the punctuation of the skyline, some having a modified entablature and a simple blocking course above, while others without any cornice have the parapet tops shaped into a series of free-hand curves and contra curves arranged symmetrically about the centre line, with a deep plaster mould run on the wall face and following the shape of the parapet. The origin of this treatment is obscure, but it betrays a decidedly Eastern influence, and might have been introduced by the Malays, who were brought to this country as slaves. Many of the descendants of these people still practise the plastering craft,—their skill and understanding of the material affording evidence

of a long standing tradition. This type of parapet is occasionally found on two-storey buildings, but examples are sufficiently rare to justify these being classed as exceptions.

The second type is the double-storied house of more formal design. The stoep which is found in all examples is in this case from two to five feet above the road level. The facade has usually two sash windows on each side of the entrance ; a well-proportioned cornice and blocking course in the earlier examples completing the composition. As a variant of this extremely simple arrangement, a pediment is often introduced projecting slightly beyond the main cornice and the line so commenced is carried down on both sides of the doorway to the stoep level with a plaster projection of not more than an inch and a half. The tympana of these pediments provided space for some delightful and well modelled subject panels. Later houses of this type are very formal in their treatment ; plain or fluted pilasters are introduced with a free interpretation of the classic cap and base, usually Doric and, in the very late examples, when the French influence began to appear, skilful adaptation of the Corinthian or Composite capital. Simple cornice here gives place to full entablature, but the blocking course, often dispensed with, is never developed into the Renaissance balustrade.

The next type for consideration is properly a three-storey house almost identical to the previous type ; a more accurate description is a two-storey building with a basement above ground. The stoep which has a wooden floor with beams supported on klompje piers is, in this case, as much as eight feet above the road level, the principal floor is still at the stoep level and the ground floor used for storage and perhaps to house the slaves.

Lastly there is the type with the gable with sweeping scrolls on either side, used to give light to one room known locally as the Dak Kamer (Roof Room) situated above the prevailing level of the neighbouring roofs providing a comfortable vantage point from which to view the town and what was more important Table Bay, the arrival and departure of ships being events of great significance in the daily life of a people so isolated from the outside world.

Photo *E. Edwards.*

Photo *N. Hanson.*

A notable difference between the houses of Holland and the Cape is the proportions of the facade. The typical Holland houses, restricted by very narrow sites, have elevations considerably greater in height than width, contrasting with the Cape house whose elevation is always greater in width than in height.

The disposition of the windows in the facades affords an interesting study ; for in many cases the whole charm of the elevation relies upon this important factor, teaching an invaluable lesson in pure design wherein the appeal is more intellectual than emotional.

Analysis of the lateral and vertical divisions of the facade over a number of examples shows a curious similarity to exist in the relation of solid to void. Laterally the building is punctuated at each end by flat pilasters or with a slightly greater mass of wall between the end and the first window frame, then there are two windows of somewhat greater width than the intervening wall surface on each side of the projection carrying down the lines of the gable or pediment to the stoep level, the central window on the first floor having the same amount of wall between the frame and the break as the two windows in the panels formed by this break and the flanking pilasters.

In the vertical divisions, taking the stoep as the base line, the height to the underside of the ground floor window cill is approximately one-fifth of the height from stoep to the top of the window head, the ground floor windows are very nearly twice their width in height, and the height of the wall face between the ground floor window head and the underside of the first floor cill is equal to the width of the window. First floor windows are always two panes less in height than those of the floor below and the space between these windows and the soffit of the corona of the main cornice is again equal to the width of the window.

The depth of the entablature in relation to the total height from the stoep level is generally about

one-seventh, but this varies from one-sixth to one-eighth is some cases. Normally the ground floor window sashes are five panes in height, those on the first floor four panes high and the gable windows three panes high.

The majority of windows are divided in the manner typical of the seventeenth century in Holland, with upper and lower sashes equal in height; the characteristic unequal sashes of the eighteenth century in Holland appears in only a few examples at the Cape, and as far as it is possible to ascertain, not at all in the town houses. The use of casement windows is not so general as the sliding sashes but they are frequently used in unimportant positions such as side walls where they give light to minor rooms or to the staircase. In a few rare examples double casements with dividing mullions appear in the facade on the first floor.

Planning of the period is very simple and direct the shaped plan being almost universal; the example illustrated is one of the few existing to-day in their original state.

The entrance or Voorhuis leads into a spacious inner hall at right angles to the main axis, lit by windows looking out on to the courtyard formed by the two projecting wings. From the Voorhuis doors on each side give access to the principal reception rooms and from the inner hall access is gained to the other apartments on this floor and to the rooms above by means of a dimly lit narrow staircase tucked into a remote corner. The kitchen, with the other domestic offices, is situated at the end of one of the wings, with a door opening into the courtyard. Slave quarters, fuel stores and loft are grouped together in outbuildings separated from the main house.

The Cape custom of leaving a passageway about four feet wide between each house dates back to the early days of the settlement. Apparently the primary object of this provision was in case of fire to enable the firemen to play the hose on the greater part of the building; a further reason, no doubt, was to give access to the rear of the house and may also have been provided, as Mentzel quaintly asserts, "to permit the rainwater from the roofs to find its way to the road."

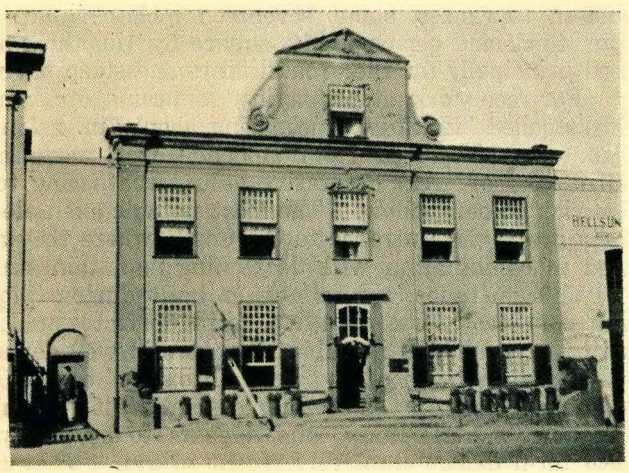
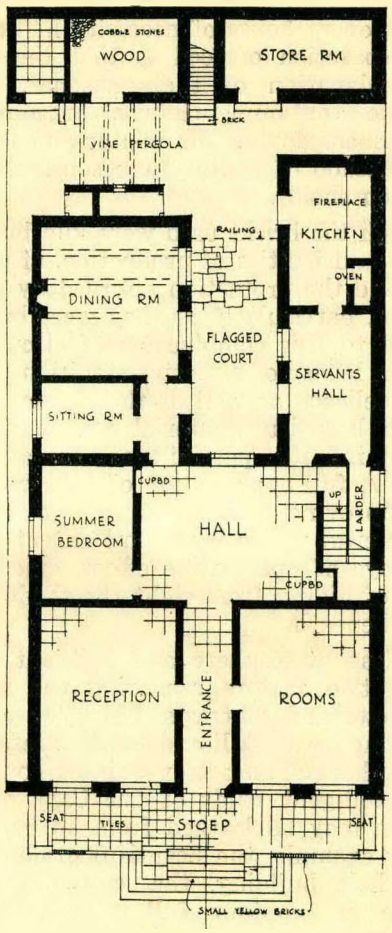


Photo *R. D. Martienssen.*



Gardens or forecourts are rarely found adjacent to the town house, these features being more generally encountered in the outskirts of the town and are therefore beyond the scope of this treatise.

The almost complete subordination of the staircase to what might almost be termed a luxurious ladder leading from one floor to another, together with the absence of fireplaces, except the essential kitchen hearth, probably constitutes the most remarkable paradox to be found in any period or branch of architectural development. Paradoxical because these features were characteristic and contributed so much to the charm and elegance of the architecture of Holland and because life at the Cape had so much of stately ease and an appreciation of the amenities necessary for the enjoyment of comfort and physical well-being. While it is true that examples of both ample staircases and fireplaces do exist they are sufficiently exceptional to be singled out and are therefore not representative of the period. Whether the subordination of the staircase was due to the principal rooms being located on the ground floor or to the great scarcity of timber necessitating strict economy, it is difficult to decide; the first floor being a replica of the ground floor, an apartment equal in size to the inner hall appears again and it is most improbable that it served merely as a means of access to the minor rooms.

The absence of fireplaces is quite inexplicable; the danger of fire in a town still having many thatched roofs might have discouraged their use, but, on the

other hand, every house of necessity had one fireplace for the preparation of food so that this is hardly a feasible explanation of their absence. Perforated wooden boxes containing charcoal braziers were used as foot warmers during the winter and it is probable that this method of heating was considered sufficient for most households.

Although the bricks used were kiln burnt and considering the difficulties of production, of good quality, they required the protection afforded by plaster from the weather, particularly as they were built in dagga mortar and to this combination of circumstances we owe the fine legacy of a plaster tradition. The refinement and delicacy as well as the understanding with which this beautiful material was handled demonstrate its infinite possibilities as an expressive medium. A full appreciation of this would do much towards improving the status of an ancient and honourable craft which is to some extent looked upon, in these days of speculative effort, chiefly as a useful means of hiding from sight the shoddy and defective work beneath.

The clear atmosphere and brilliant sunshine of Africa are two factors rendering the avoidance of harsh shadows and contrasts desirable; a feat of design requiring great skill and much careful study. As a means to this end no better training could be offered than an intelligent study of the Cape plaster work. Some lesson may be learned from an examination of almost any example, the beautiful gradations of tone over the whole building, the crowning cornice or entablature in contour full of refined grace with luminous shades and soft cool shadows, the admirable suitability of the modelling to the material and perhaps greatest of all lessons, the charming contrast of broad wall surfaces with the refined detail, which is the architect's equivalent of Mozart's "finest effect in music" the rest.

Peculiar to the Cape and an important element in the social life of the people, the stoep forms a prominent feature in domestic work. Here the family and their guests would foregather in the cool of the evening on the calm nights of mid-summer, to pass the time, exchanging reminiscences or items of gossip with their neighbours. Taking in the full width of the facade, usually with solid brick seats finished in tiles and having returned ends parallel to the facade, often shaped into a graceful scroll, the stoep built in klompjes with brick-on-edge margin and the steps of great variety in design lends character and an air of hospitality to the ensemble. Where the space below is too small to be utilized, it is filled in and paved with slate or quarry tiles, the favourite pattern being formed by staggering alternate courses, that is, laid to break joint in one direction. The more elevated stoeps have simple but effective wrot iron railings with turned brass or iron terminals to the standards.

The metal work in wrot iron and brass was well designed and skilfully made. Wrot iron strap hinges and fastenings for casements and shutters are used everywhere and many of the doors still have brass finger plates and crutch handles of curious design of great decorative value.

The materials used and the methods of construction adopted afford an interesting subject for study, throwing much light upon the quality of the labour in the various trades and the ingenuity with which the constructional problems, arising from lack of facilities or paucity of materials, were solved.

The foundations were of a primitive type consisting generally of rubble stone walling set in dagga mortar, the stone being obtained from the adjacent quarry on Signal Hill or Lion's Rump, as it was called in those days.

The origin of the word "dagga" as applied to mortar at the Cape is sufficient explanation of the material. It is probably derived from the Xosa word daka=dirt or mud.

The walls were built of bricks about 9in. x 4½in. x 2in. and dagga mortar the external and internal walls being from 18in. to 20in. thick and to strengthen the angles, long wrot iron ties with large X shaped anchors were built into the external walls. The ends are concealed by the plaster.

A brick kiln is indicated on a plan of Cape Town as early as 1656 and a description of the methods adopted in the manufacture of bricks is to be found in Mentzel's "Beschreiburg des Vorgebirges der Guten Hoffnung." (Volume 1). This description which could not have been written of a period later than 1732, the probable year of Mentzel's arrival at the Cape, proves that brick-making was well established and had become an important industry. The generally accepted statement that the bricks were of a very poor quality and sun-baked is therefore incorrect. Further, we find that closed kilns were built for the burning of bricks and that a licence had to be obtained from the Governor for the construction of brick or lime kilns. Sun-baked bricks, however, must have been used in the construction of the less important structure for Mentzel remarks that the scarcity of wood fuel made kiln burnt bricks very costly; the price being 10 Rijksdaalders per 1,000 (about 40 shillings English currency).

Mention is also made elsewhere of the Governor-General inspecting the pottery and tile factories at Table Bay and finding the work "very compact and good and the tiles better than those of Batavia." Paving tiles manufactured at the Cape were obtainable in two sizes, about seventeen inches square by 1¾in. thick and eleven inches square by 1in. thick and used principally for the ground floors and stoep paving.

For face work, steps, paving, fountains, etc., small bricks called "klompjes" measuring about 7in. x 3in. x 1½in. were imported from Holland: well made and burnt, and of great decorative value, weathering to a fine rich golden yellow. The most notable example of their use is the Entrance to the Castle where they are used in combination with local blue mountain stone.

This entrance and bell tower built during Simon Van der Stel's term of office, is in perfect condition with the mouldings in rubbed bricks still well defined.

The derivation of the term "Klompje" as applied to these bricks is somewhat obscure; it literally signified "a little lump" and appears to be purely a local term of comparatively recent origin. They are called "geele Klinkers" (yellow hard bricks) in the

records of goods received from Holland and were imported in very large quantities; a shipment of 50,000 is recorded.

Bricks about 10 inches long called "Tiggelsteentjes" and "graauwe moppen" (gray bricks), large bricks about 24 inches long, 12 inches and six inches thick were also imported, but for what purpose it is difficult to discover, the only reference to them so far discovered is in the description of the method of constructing the flat roofs; here they were used as a foundation for the lime concrete.

An item of "Tiggelsteenen witte en blauwe" in one of the lists probably refers to the Delft glazed blue and white picture wall tiles.

One of the chief difficulties with which the builders had to contend was the great scarcity of indigenous timber in the locality suitable for building carpentry and joinery. The whole of the timber had to be imported from Holland or any other available source. Van Reibeek discovered a yellow wood forest at Hout Bay but this supply was probably soon exhausted.

Mentzel tells us that the Dutch East India Company established a station on the Island of Mauritius, the chief products being black and yellow ebony. "yellow ebony" probably refers to teak, at any rate we know that teak was sent to the Cape from this station. The Company, however, abandoned the settlement about 1721 when their servants were transferred to the Cape, and this further increased the timber shortage.

The Van der Stels were great tree planters and this, no doubt, was partly due to the scarcity of timber. Grants of land were made to Burghers on condition that they set aside a certain area for tree planting. Plantations were made at Rondebosch, Stellenbosch and Drakenstein. Heavy penalties were exacted for damage caused to trees; twelve months hard labour for any one injuring a garden or tree and in 1740 this offence was punishable with "serving two years in chains as a convict of the public works or a severe scourging."

A Requisition from Adriaan Van der Stel asks for "three hundred more deals for the Burghers to save the forests for some time longer" and another for "more Norse deals and spar ribs for the citizens whose houses are rapidly increasing." The zeal with which tree planting was pursued proved by the irony of fate useless as a solution of the problem; the trees grew so rapidly in the semi-tropical climate that they were useless for conversion into timber. The shortage continued to be acute and in 1761 an expedition under Hendrik Hop set out in the hope of discovering a forest belt. This also proved abortive because the expedition travelled North to Namaqualand, an area with a very low rainfall and consequently little vegetation. The vast forests of Knysna were for some extraordinary reason overlooked. The Colonists must have had knowledge of this area for Governor Van Plettenburg visited Knysna in 1778, but it is not until the publication of Commissioner J. A. de Mist's "Memorandum containing recommendations for the form and administration of Government at the Cape of Good Hope" in that mention is made of timber being obtainable from Plettenburg Bay. As late as 1788 shipments of timber were still being obtained from Holland.

Stone suitable for building in the vicinity of Cape Town is of a refractory nature, necessitating great labour in dressing so that with the exception of fortifications, rough paving, and foundations already referred to, it was not generally used in the early work, although examples of stone walling are to be found, the masonry is of a very primitive character and with the use of dagga mortar plastering was essential.

Slate paving in squares of about 1ft. 6in. was used frequently both internally and externally. The slate was quarried on Robben Island about seven miles from Cape Town. Mentzel mentions this quarry in his Biography of Rudolf Siegfried Allemann published in 1784 and states that it was worked by convict labour.

Examples of the ground floor constructed of boarding and joists are frequently encountered, but the unsound method employed probably led to the gradual substitution of slate or tile paving as the old wooden floors became defective and unhealthy, a condition which must have been very rapidly reached for the joists were laid on earth filling, the intervening spaces filled in with earth to their full depth and the flooring then nailed to the joists.

The upper floors are very simply constructed of teak beams about 11in. x 4in. and 10in. x 8in. or yellow wood beams about 9in. x 6in., at about 2ft. 6in. centres wrot and moulded, with simple quadrant mould on both bottom edges and yellow wood flooring 1¼in. thick and 9in. and 12in. wide with tongued and grooved joists nailed to the beams also forming the ceiling to the rooms below.

Later, probably during the British occupation, plaster ceilings became fashionable and many of the existing houses were "modernized." Deal joists were inserted between the old beams and laths of split bamboo reeds, from the marshy ground along the banks of the Black and Liesbeek Rivers, nailed to the new joists and plastered in lime with typical Georgian cornices and patera.

The frequent periods of modernization through which much of the Cape work passed, introduces a factor, making it very difficult to state with certainty the exact date of the building. The dates often placed in the tympana of pediments and upon gables probably only refer to the remodelling of the facade or the renovation of that particular part. Documentary evidence affords little assistance in this regard as it relates chiefly to the granting of the land to the original settler.

Of the many problems which confronted the pioneers, the difficulty of obtaining a safe and efficient roofing material was probably the most troublesome. Some of the public buildings had tile roofs. Mentzel tells us of the Naval Storehouse which had an exceptionally high roof covered with very oldfashioned tiles, which were shaped like an S but placed horizontally probably Pan tiles. "But although these tiles weighed 16-18 pounds, no amount of plastering prevented them from being torn off the roof during a South Easter"; so that it was found necessary to encase the roof in a framework of laths fastened by iron clasps.

The next material to be adopted was reed thatch, an abundant supply in the neighbourhood being available. A layer of puddled clay called "Brandsolder" (fire ceiling) was placed on top of the ceiling boards as protection against fire—the one serious disadvantage of the material—this precaution, however, was very inadequate. In 1710 practically the whole village of Stellenbosch was destroyed by fire; and Mentzel in his biography of Allemann tells us how a number of runaway slaves attempted to destroy Cape Town by fire when a strong South East wind was blowing, in 1736, resulting in the total destruction of five large houses. In the rebuilding after the fire, Mentzel says that "flat roofs of stone" were substituted, "an example which was followed by most of the well-to-do Burghers at the Cape; they broke up the old reed thatch and put on massive flat stone roofs instead."

Although "Stone Roofs" are mentioned here, no examples exist to-day and the author apparently contradicts himself in his "Beschreibung." This may be due to a mis-print or an error in translation. There Mentzel writes.—"in 1732 a tailor, by the name of Müller, who had massed a large fortune by trade, pulled down his corner house in the market square and put up a new three-storied building with a flat roof in the Italian style. Although this roof was very well built of Dutch clinker tiles set in lime plaster, it was impossible to keep it water-tight, until three or four years later a friend of the owner recommended that the roof be given several coats of oil, either fish or train oil (seal oil), such painting to take place in very hot weather. This advice was followed up with excellent results." Then after repeating the plot of the slaves in 1736 he says that "the houses were rebuilt in the style of the tailor Müller."

The difficulty of making the roof water-tight is still experienced at the Castle where the only remaining examples of this type are to be found and it is curious that even nineteen years after the publication of the Council's recommendations in 1717, it was still in use, for the lighter roof in addition to being more economical must have proved more efficient.

The number of fires due to the inflammable thatch roof covering resulted in the Council of Policy, which together with the Governor was responsible to the Council of Seventeen for the Government of the Cape, publishing a recommendation in 1717, urging the people to construct their houses with flat roofs which had been the subject of some experiments carried out by Secunde Cranendonk, one of the officials stationed here at that time.

The early buildings at the Castle already had flat roofs, but they were about eighteen inches to two feet thick and very heavy. The experiments succeeded in reducing this excessive thickness to about six inches. The following is a translation from the Council's recommendations describing the method of constructing the new roof:—"The walls of the building being finished and the beams laid on them, laths or ribs are to be nailed upon them each of three or four inches, the broadest side resting on the beams. No planks are to be used, otherwise the defects of the roof will not be visible from below. Over these ribs gray or other hard burnt bricks which are made here, eight by four inches, are laid, the heads meeting each other on the laths. The floor having been thus laid, the builder is to take four parts of stamped lime shells taken out of the gravel of the oven (kiln) and two parts ordinary mason lime and two parts finely powdered bricks. All these materials are to be well mixed whilst dry and then gradually cocoa-nut oil is to be thrown on, until the whole is thoroughly prepared like dough. It is then at once to be laid on 1½in. thick and rubbed in with the trowel and steadily beaten together as much as possible with wooden mallets. The mallets are not to be too heavy and the beating must be gentle or moderate lest the bricks are broken. Whilst busy with this, the second layer is to be prepared, viz.: ten parts of finely sifted lime, three parts finely sifted gravel of baked bricks and one part of Bengal Gor or sediment of sugar (draf zuyker-molasses). This composition is to be treated in the same way as the first and to be put on when ready about one inch thick, and carefully beaten down on the other layer. Finally a liquid composed of lime, oil and Gor is made and with a strong hand and a smooth trowel well rubbed on as the last coat.

The method of using the bricks to span from lath to lath so that "defects could be visible from below" must have produced a very unsatisfactory appearance and evidently did not find favour at the time, for close boarding was substituted. With this improvement the construction described above is found in all remaining examples of this type of roof.

Doors, windows, cupboards and staircases were generally of teak; and yellow wood, camphor-wood and other indigenous timbers were used for panels. It is perhaps in the joinery that the finest craftsmanship and design is to be found.

The entrances were always well accented with teak pilasters, caps and bases (in some examples the caps are modelled in plaster) and plaster and wood over door entablature. The doors themselves were well-made with bolection moulds, fielded panels and shaped head, and above the transom a finely carved Baroque teak fanlight or perhaps in the simpler examples quaint geometrical patterns instead of the carving or even divided into panes with shaped bars of a great variety and treatment.

Iron or brass lanterns were sometimes worked into the design of the fanlight, giving light both inside and outside. An ingenious arrangement found in some of these doors is the case of the "Dutch Stable door" where, when the upper half is open a sash counterbalanced by lead weights in pockets cut out of the solid frame can be made to slide down from behind the fixed fanlight and rest on the lower half of the door. Elaborate and well-executed carving on the doors themselves is quite common and even the simplest dwellings have some little carved embellishment in the centre of a shaped transom.

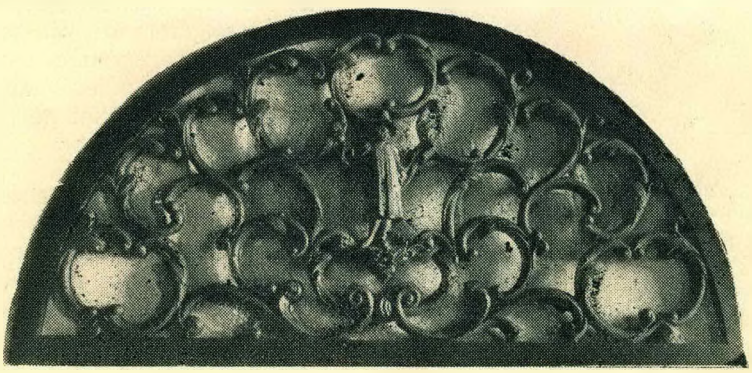
Sash windows in teak were almost universally used throughout the period. They are of the type which it is believed was used in Holland as early as 1630, that is, with the top sash fixed and only the bottom

one sliding; the weight pockets are formed out of a solid frame with access provided by a loose inside lining, the glazing bars are always about one inch wide and the proportion of the panes somewhat less than the diagonal of the square of the width in height. The upper sash is fitted into a rebate in the outer jamb of the frame and transom and secured with a quadrant bead planted on and mitred around the four sides. The glass which is the usual hand-blown sheet of the period was imported from Holland. It has the pleasing warm mauve tint imparted to it by the excess of Manganese oxide used in the manufacture. The glass arrived from Holland in sheets 12in. x 14in. and was cut into panes as required; there is very little variation in the pane size, which is generally about 9in. x 7in.

The iron used for hinges, railings, wall ties, etc., was imported by the Council from Holland.

HERBERT MEYEROWITZ.

G. E. PEARSE.



FANLIGHT,
NEW UNIVERSITY BUILDINGS, RONDEBOSCH.

During our Architectural tour at the Cape we visited the Michaelis School of Art and spent a very profitable and instructive hour or two in the studio of Mr. Meyerowitz, the sculptor. Mr. Meyerowitz, who came out to South Africa about two and a half years ago, was a student at the School of Applied and Fine Arts, at Berlin, and was later assistant to the Professor of Applied Sculpture.

During his course he spent one and a half years in Italy and a short time at the Ecole des Beaux Arts, in France.

He visited this country on his honeymoon "to look round," as he said, and as correspondent to one of the important German newspapers.

At Cape Town he fortunately met one or two of the leading architects and builders, his work was instantly appreciated and he was appointed sculptor to the Michaelis School of Art.

Since that time he has done an extraordinary amount of work and has been constantly employed on the new University buildings at Rondebosch.

Such a man is a great asset to a country like South Africa, where we are building up our traditions, for he is not only an artist-craftsman but a scholar and a thinker.

His views on craft training are interesting and he has contributed one or two articles on the subject to the "Educational News."

In these he stresses the value of co-operation between the architect and craftsman and the necessity for training artist-craftsmen if we are ever to carry on the traditions of the 18th and early 19th century work.

In speaking of the changing conditions in the Craft Schools in Europe, he says, "In the year 1924 the old German, 'Hochschule Fuer Die Bildenden Kuenste' in Berlin died its natural death of old age and uselessness. The canvasses and plaster casts were standing about with thick layers of dust upon them and looked so poor and miserable as if they knew how utterly useless and unwanted they were. It was impossible to fill the gap between the old tradition and our new time with that rubbish. They had been worked without any aim, they had gradually become conventional schematas, they had lost their basis, they could not exist any more, they were utterly useless and had to die.

At this moment the School of Applied Art moved into the old building and with it came a new and fresh working spirit, its masters and pupils being received with scorn and disgust by the old academy pupils. "We do not want to work with wallwashers and masons together," they said. They changed their attitude very quickly as soon as the newcomers—the masters, apprentices and pupils—started their work, and showed their appreciation by trying to join and help them.

HEAD IN NICHE,
GREAT TERRACE, CAPE TOWN UNIVERSITY.

It would be too much now to explain why the German Kultusministerium realised how very necessary it was to take this step, but the very fact that an architect was made head of this new institution showed the way which was intended to be pursued. Obviously this change was made to drag the young artists out of their sterilising isolation and made them realise the importance of being usefully productive. The architect is the General in applied art. He plans the building, he wants painters to decorate the walls, sculptors to carve in wood and stone, modellers, stucco workers, metalworkers and so on. He cannot possibly design every detail by himself. He suggests, the artist-craftsman designs and executes. They all work together and express, out of this working atmosphere, what the place where they are working has to say."

Later he emphasises the value of our traditional work at the Cape and deplores the fact that cheap marble statues turned out like Ford cars in Italy are imported for our cemeteries and that our carved woodwork is mainly executed in English factories.

"We must stop," he says, the use of the eternal fruit and vegetable festoon decorations with the egg and dart, Ionic and Corinthian Capitals in concrete, Egyptian doorways and those dreadful pseudo renaissance and baroque stucco ornaments. These things have died long ago they have no connection whatever with this country. They are done out of the laziness of the heart, lack of time or purely out of money making desire. Better not to decorate at all than decorate like that, showing the very poor standard of our present craftsmanship. Everything the old Malay carvers and plasterers have done in this country is a thousand times better than those wretched atavisms mentioned before.

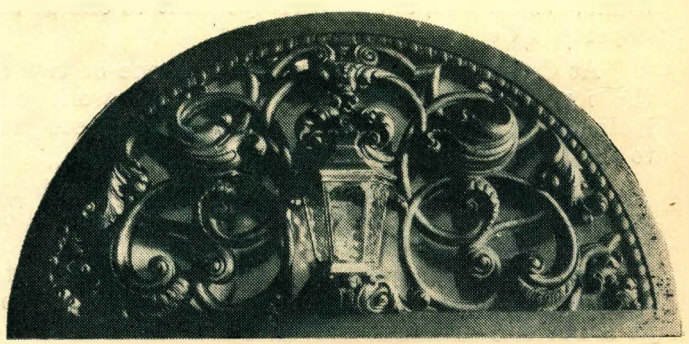
Nothing will induce me to believe that in the days of Anton Anreith the workers were better fit or abler to do their jobs, than we are to-day. A man like Anreith was an apprentice. He was trained in the atmosphere of his master's studio, which is of more value to a young man than any art school in the world. No wonder that he was able to do all the beautiful things that he has done, and he is only one of thousands."

He is somewhat critical of many of our modern Architects, who do not appreciate the value of the third dimension and stressed the value of carving in wood instead of modelling in plaster as part of an architects training.

In discussing our local timbers for wood carving he speaks well of the Cape yellow wood, stinkwood and wit els, comparing the latter favourably with the English limewood. He is not very enthusiastic about our local freestones, but considers the granites and mountain stones are very good.

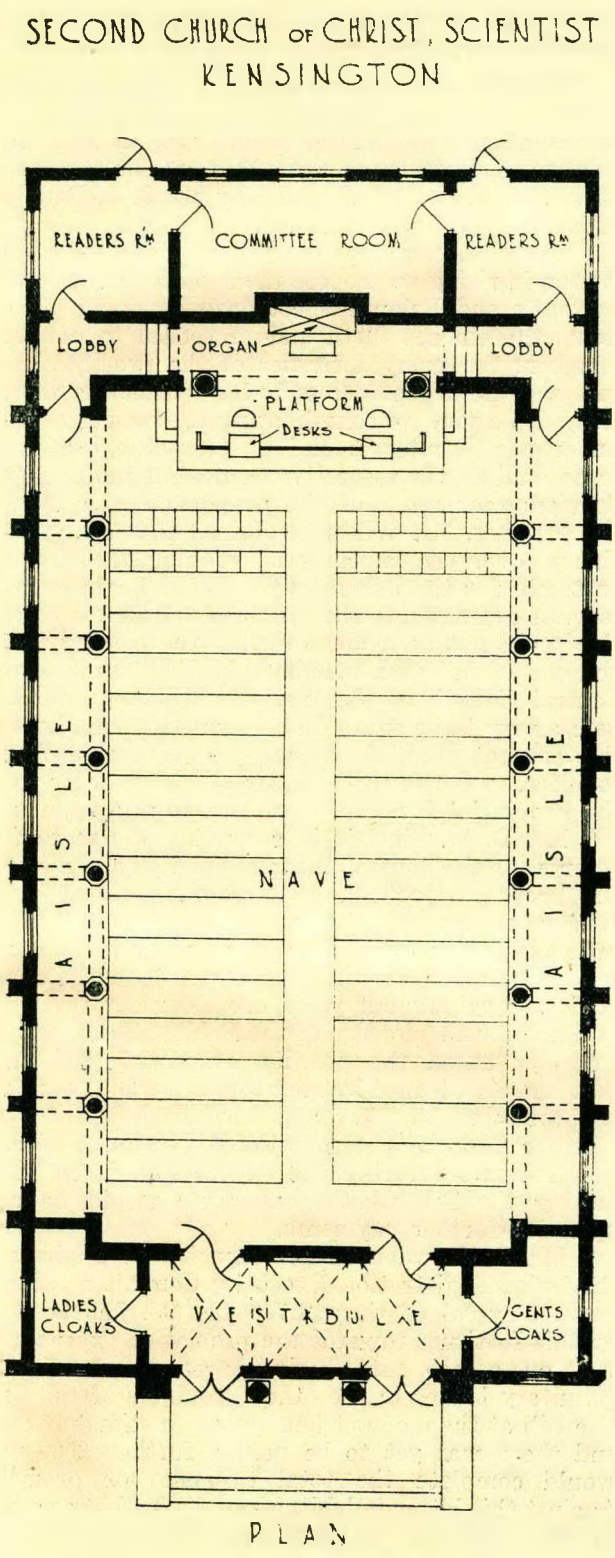
The excellent results of his teaching are already seen in some of the work of his students and, like that of the late George Ness, the influence of his work should be far reaching.

The illustrations show some of the work carried out by Mr. Meyerowitz from the designs of Mr. C. P. Walgate, of whose co-operation and sympathy he speaks most enthusiastically.



FANLIGHT OVER ENTRANCE,
CAPE TOWN UNIVERSITY HOSTELS.

NEW CHURCH AT KENSINGTON.



THE EXTERIOR.

This Church has been erected at Blenheim Streeet, Kensington, from the design of Messrs. Cowin, Powers and Ellis. It is planned on simple lines in keeping with the practices of this Community and in addition to the Main Hall there are Readers Rooms, Cloak Rooms and a Committee Room. The benches are placed on a sloping floor to ensure a good view of the Platform and the seating capacity is for 270 people.

The walls internally are finished in plain plaster with a brick dado and the ceiling is of beaver board; externally the walls are brick faced at plinth with plaster above and concrete block dressings and the roof is covered with Marseilles tiles.

The late Mr. G. Ness executed the electric light fittings from the Architects designs and Mr. J. Barrow was the Contractor.

THE INTERIOR.

PROFESSIONAL NEWS.

THE INSTITUTE OF SOUTH AFRICAN ARCHITECTS.

THE TRANSVAAL PROVINCIAL INSTITUTE.

F. WILLIAMSON, A.R.I.B.A.

The Minutes of the Eighteenth Annual General Meeting of Members of the Provincial Institute, held in the Associated Scientific and Technical Societies Club, 100, Fox Street, Johannesburg, on Wednesday the 29th February, 1928, at 3 p.m.

Present.—The President, Mr. J. Lockwood Hall, in the Chair, Messrs. G. S. Burt Andrews, B. R. Avery, Harry Clayton, N. T. Cowin, P. Rogers Cooke, J. F. Corbitt, J. B. Dey, W. Davie, J. S. Donaldson, Miss Nelly Edwards, Messrs. F. L. H. Fleming, A. H. Gibbs, R. Howden, C. B. Lugg, Arthur Leitch, Stakesby Lewis, W. G. Lansley, Sutherland Millar, D. A. McCubbin, J. P. Nelson, R. W. Norburn, H. Porter, G. E. Pearse, F. Raine, H. Rowe Rowe, D. M. Sinclair, H. Simonsen, J. C. Tribelhorn, Allen Wilson, F. Williamson, I. Wayburne, R. Wild and the Secretary, M. K. Carpenter, also Mr. C. J. Crothall.

Apologies for non-attendance were received from Messrs. D. M. Burton, Gordon Leith and A. Stanley Furner.

Appointment of Scrutineers.—Owing to the heavy ballot it was decided to make the appointment of Scrutineers right away so that the work entailed might be got through without delay.

Mr. N. T. Cowin proposed the appointment of Miss N. Edwards and Mr. C. J. Crothall, this was unanimously agreed to.

Subsequently Messrs. H. H. V. Simonsen and F. Raine were appointed additional Scrutineers to facilitate the declaration of the Ballot.

Minutes.—The Minutes of the Seventeenth Annual General Meeting held on the 24th February, 1927, published in the March, 1927, issue of the "South African Architectural Record" were, on the motion of Mr. N. T. Cowin, seconded by Mr. J. S. Donaldson, taken as read, and confirmed.

Annual Accounts and Balance Sheet.—Mr. Allen Wilson in rising to propose the adoption of the Annual Accounts and Balance Sheet dealt in detail with the items therein set forth and proceeded to explain to members the many activities of the Provincial Institute and the urgent necessity for considering the position with a view to consolidating the various activities under one Secretariat and to determine the amount to be paid by the respective Bodies for the Secretarial Services rendered plus the proportion of rental, etc.

Further, Mr. Wilson explained that owing to the change over the expenses of running the Provincial Institute for the current year would be in excess of revenue estimated to the extent of approximately £200, this could not be avoided during the coming year on account of pro rata membership levy payable to the Central Council of the Institute which would aggregate a very large sum. In subsequent years, however, this amount might be reduced or permission obtained to increase the Annual Subscriptions in order to give the Provincial Institute sufficient working funds.

Mr. D. M. Sinclair in seconding the motion also referred to the general financial position and advocated the proposed pooling of interests, outlined by Mr. Wilson on behalf of the Finance Committee, and referred to the possibility of meeting the necessary expenditure for running the Institute and its allied bodies, in subsequent years, from current revenue.

Prior to the adoption of the Balance Sheet, Mr. Burt Andrews asked the position respecting the monies that had been loaned by members towards the expenses of promoting the Act and further desired to know whether under the unconditional guarantee given by the Institute covering the expenses incurred in promoting the Bill whether members would be called upon for further payments.

Mr. R. Howden in his capacity of Chairman of the Union Registration Executive Committee, the Promoters, explained that £1,746 12s. 9d. had been paid by this Institute towards the promotion expenses, this was on a pro rata basis shared by members of voluntary bodies in the other Provinces of the Union. The Bill at the moment had cost approximately £3,500, and there was yet to be paid a further £500 which would complete the total expenses of promotion. Against this latter indebitness of £500 a large sum was in the hands of the Inaugural Board which would eventually be handed over to the first Central Council whose main object would be to pay the balance of the promotion expenses. Thus members of this Provincial Institute would not be called upon for further

contributions under this heading. After the establishment of the Central Council it is confidently expected that the outgoing Inaugural Board will pay over approximately £1,000 and that from other sources additional amounts will become available so that the Central Council will doubtless find itself in a position to refund a large proportion of the amount advanced by members throughout the Union towards the promotion expenses.

Following this explanation Mr. Burt Andrews expressed himself satisfied and the Accounts and Balance Sheet were duly passed.

Mr. D. M. Sinclair pointed out that the promotion expenses were very great, considerably greater than was first advised or even anticipated by the Promoters who in the first stage of promotion were advised by a well known firm of Parliamentary Agents that the cost of promotion should not exceed £500.

Mr. Sinclair further pointed out that the incoming Provincial Committee would have to be very careful in financial matters because on the face of things the Institute will have to run at a loss during the forthcoming year.

Provincial Institute Committee's Report.—Mr. J. S. Donaldson formally moved the acceptance of the Report on the year's working issued by the Provincial Institute Committee, this was seconded by Mr. D. A. McCubbin and agreed to without discussion.

Valedictory Address.—The Retiring President, Mr. J. Lockwood Hall, F.R.I.B.A., after expressing the pleasant experience his year of office had been, delivered the following Valedictory Address :—

" I will preface my remarks this afternoon by an expression of sincere and hearty thanks to the members of the Provincial Institute Committee for their ungrudging and loyal support during my year of office, as a matter of fact it is necessary to be in the Chair of the Provincial Institute to appreciate that support—when you think, gentlemen, of the time and ungrudging service given by the members of your Institute Committee during their year of office or rather in many individual cases years of loyal service the profession in general, in my opinion, should be grateful.

"It is unnecessary on my part to adumbrate on the year's work since the Annual Report, a copy of which has been issued to each member, had fulfilled that function.

" The most important event during my year of office has been the promulgation of the Architects and Quantity Surveyors' Act which event took place in June last year. Regulations consistent with this act have been drafted by the Inaugural Board and I have been officially informed will be published in the Government Gazette on Friday next the 2nd instant and laid on the table of both Houses on Monday next, so that within a reasonable period of time, say one month these Regulations will have the force of law and the Institute of South African Architects will thereafter be fully equipped as far as governing powers are concerned.

" It is impossible to detail all the good work done individually by members of the profession who for years have been responsible for the promotion of this Act; but of our own members I should like to record the valuable services rendered by Messrs. R. Howden, D. M. Burton, D. M. Sinclair, Allen Wilson, J. S. Donaldson, M. J. Harris, F. L. H. Fleming and H. Porter.

"The passing of this Act is an important landmark in the Architectural History of South Africa, and must eventually do a tremendous amount of good, as it will at least ensure that Architects in the future will be fitted both educationally and architecturally to carry on the best traditions of the art.

"I must at this juncture thank all the members of our profession for the generous response to the funds for the promotion of the Act. I know these loans were in many instances made at great personal sacrifice, therefore all the more thanks are due.

" This Institute had the honour of a visit from the distinguished Architect, Sir Herbert Baker, we were glad to receive him again in the midst of his early labours, culminated by that glorious pile he has left in Pretoria. As you know he expressed himself fully satisfied with the progress and improvement generally of architecture in South Africa. Such an encomium coming from such an authority is very gratifying, and if the architects of the future will saturate themselves with the work he has done and endeavour by precept to follow his example then architecture will indeed advance still further in South Africa.

"With regard to the new members I should like to offer a few words reminding them of the obligations, and impress upon them the dignity of the profession they have entered into, as they doubtless know there is a code of professional ethics which in some instances is written and in others, notably Euglish practice, not. They must endeavour by a strict adherence to the regulations and by personal precept to keep the standard of the profession and art of architecture in the position which it undoubtedly holds as the mistress art. I have made these remarks, perhaps all too few, in view of the tremendous influx of new members, some of whom may not be altogether conversant with architectural ethics.

"There is far too little appreciation of the work of an Architect, the great responsibility which he incurs, added to very considerably in the last 20 to 30 years, and which, owing to professional etiquette, he is not allowed to advertise. The public are in ignorance as to his real functions thereby not employing him and thinking they have saved his fees. At the same time, Gentlemen, I must say something in favour of the press of South Africa in that they do endeavour to instil the value of good architecture into the public mind, although sometimes in the laying of a foundation stone the architect's name is absent. The great thing is to educate the public and teach them that the amenities of life are greatly enhanced by living in good architectural and pleasant surroundings. In this respect the Press can give a lot of assistance by articles on the aesthetics of architecture and giving them prominence.

"Building activities generally throughout the Country, do not show any diminution, large buildings have been completed and others are projected or are in the course of construction. Every visitor to Johannesburg will have continually before them that great project, the Railway Station, with the Cathedral close by. I should like to have seen the latter on a less confined site. There are many other buildings going on which are worth more than a casual look.

"The Benevolent Fund as you will see by the Financial Statement has had to draw from capital funds to carry on its good work. Donations are badly wanted. I would therefore appeal for assistance to this fund and as our members are now far greater we have a great opportunity to put it on its feet and suggest that a nominal sum of a pound a year from each member would not hit anyone very hard, in view also of this great influx of new members there is a likelihood of there being greater calls on the funds, so please do not delay in giving a helping hand.

"The South African Academy will soon be holding its annual exhibition and I hope will be well supported especially by this Institute to whom it owes its being. Mr. Carpenter, our Secretary, is to be heartily thanked for his labour in connection with this annual Institution, as a rule it has been one of the few matters on which there has beeen no criticism.

"Our thanks are due to the Journal Committee for so ably keeping up the standard of our paper, the only fault there is to be found with it, is that it is not issued often enough, perhaps, that fault may be remedied in the near future by issuing it monthly.

"We are to be congratulated in having so able an official in Mr. Carpenter as our Secretary, no work is too much for him, and we have to thank him very heartily for the excellent manner in which he has managed the affairs of this Institute. I should also like to thank Miss Murdoch for the able manner in which she assists him.

"Now for a few words to the students, I would impress upon them that they are our future architects and should work to fit themselves for their task in life and so conduct themselves so as to instil confidence not only in themselves but in their future clients. In examining certain papers, I have to congratulate both the students in Johannesburg and Pretoria on the great improvement shown on the work of the previous year, and I have no doubt that my fellow examiners feel the same way, a few complaints have been made that certain students did not do as well as was expected, this was owing, I believe, to a certain slackness in not working hard enough. I am sure these few words should be sufficient to point out to those affected, the fallacy of taking things too easily, 'work never killed anyone,' and it should be a pleasure rather than a task to work in such an interesting profession.

"The Staff at the University and incidentally the Lecturers at the Pretoria Technical College are to be congratulated on their work in effecting great improvement in the general standard of work, and as this Institute was instrumental in formulating these classes I thank them on its behalf for the good work they are doing. If I am not presumptuous I suggest that some of the younger architects who are just on the verge of launching out into private practice would do well to take a refresher course, I would like to take one myself but unfortunately, being a busy man, I have not the time.

"Some time ago a Practice Committee of the Provincial Institute was in vogue in Pretoria which dealt with any local matters, I should like, in view of the increase in membership, to see this body functioning again. It would help to bring members together and be able to do useful work and perhaps relieve the main body in Johannesburg to a certain extent.

"A meeting could be called and the details settled at an early date. The Pretoria members can rest assured that all assistance would be rendered from Headquarters.

"Our relations during the year with that most important body 'The National Federation of Building Trade Employers in S. Africa,' without whose assistance we should not be able to function properly, have been most amicable and I see no reason why this spirit cannot be continued. Both bodies depend upon that elusive individual the client and it should be the aim and object of both to impress him or them with the fact that they cannot act better than entrust their work to the reputable men of both Institutions.

"In conclusion, Gentlemen, you will notice that I have omitted many matters of interest; but many of them were so ably dealt with by my predecessor in his Valedictory Address last year that I thought it better not to reiterate them.

"Again I thank you for the forbearance which you have displayed in not being too severe on my shortcomings during a very interesting year of office."

The President resumed his seat amid acclamation.

Mr. G. S. Burt Andrews, in thanking the President for his able and interesting address referred to the services rendered to the Provincial Institute by Mr. Lockwood Hall throughout the year particularly in respect of his regular attendance at meetings of the Institute Committee and Sub-Committees pointing out that on each occasion it was necessary for Mr. Hall to travel from Pretoria, which in itself was no light task.

Mr. H. Rowe Rowe in seconding this vote of thanks suggested that the address delivered by the Retiring President be published in the next issue of the South African Architectural Record, this was agreed to and Mr. Lockwood Hall suitably responded.

Election of President.—The Retiring President, Mr. J. Lockwood Hall, stated that only one nomination had been received for the position of President and formally declared Mr. F. Williamson elected to that position and expressed his congratulations and good wishes to Mr. Williamson for a successful period of office.

Mr. Williamson, on taking the Presidential Chair was received with applause and in reply to this welcome thanked members of the Provincial Institute for electing him to the position of honour for the

current year and promised to do everything possible to further the interests of the Provincial Institute and the profession generally.

Mr. F. Williamson referred to one or two items in the report particularly the waning interest of members in the work of the Institute and trusted that a number would come forward and offer their services as members of the Institute Sub-Committees. He was aware that an attempt had been made in the past to interest members in this direction without very much success but he hoped during the forthcoming Session members would offer their services in this direction and thereby lessen the work of the members of the Provincial Committee.

Election of Vice-President.—There being no further nominations the President formally moved the election as Senior Vice-President for the current year of Mr. H. N. Porter, and as Junior Vice-President for the same period, Professor G. E. Pearse, these appointments were unanimously agreed to and Mr. Harold Porter suitably expressed his thanks for the honour conferred.

Professor G. E. Pearse was unavoidably absent at this stage of the proceedings.

Election of the Provincial Institute Committee.—The Scrutineers having submitted their return of the Ballot cast for the election of nine members to the Provincial Institute Committee, the President formally declared the following nine members elected in accordance with the result submitted by the Scrutineers :—Messrs. J. S. Cleland, N. T. Cowin, C. C. Deuchar, F. L. H. Fleming, J. Lockwood Hall, R. Howden, A. J. Marshall, D. M. Sinclair and Allen Wilson.

Election of Auditors.—Mr. Allen Wilson moved that Messrs. Aiken and Carter be re-appointed Auditors to the Provincial Institute for the current year and that they be paid the usual sum of Ten Guineas as remuneration for their services in conducting the audit for the year 1927. This was seconded by Mr. G. S. Burt Andrews and unanimously agreed to.

The Associated Scientific and Technical Societies.—In connection with the continuance of Institutional Membership of this body the President pointed out the cost that would thereby be involved.

Mr. D. M. Sinclair explained that every endeavour had been made by the Controlling Executive to meet the wishes of this Provincial Institute but under the present constitution it was not possible for the membership to continue unless this Provincial Institute was prepared to pay the pro rata levy on each member. No provision had been made in financial estimate submitted earlier during the meeting by Mr. Wilson, but if membership of the Associated Scientific and Technical Societies were continued an additional sum of approximately £200 would have to be found, under these circumstances he was afraid that it would not be possible to continue membership.

Mr. G. S. Burt Andrews pointed out it was unbusinesslike for this Institute to have to pay a pro rata amount on members who failed to contribute and if the constitution of the Scientific Societies necessitated this course in order to retain Institutional membership then it was not a sound proposition and the Associated Body should be advised of the necessity to alter their constitution accordingly. Under these circumstances he desired to give members a lead on the matter and proposed that this Provincial Institute disassociate itself from Institutional membership of the Associated Scientific and Technical Societies as from the 31st December, 1927, purely on financial grounds. This was seconded by Mr. J. Lockwood Hall and supported by Mr. D. A. McCubbin.

Considerable discussion took place particularly in respect of approaching the Controlling Executive of the Scientific Body with a view to ascertain whether an early amendment of the constitution may be affected in order that this Provincial Institute might retain Institutional Membership on the basis of paying a pro rata amount for each member who desired to continue in membership with their body.

The President explained that Mr. D. M. Sinclair and Mr. R. Howden had made every endeavour in this direction, but that the Controlling Executive were unable to make any alteration and it would therefore be necessary to accept Mr. Burt Andrews' motion because the Institute would not be in a position to pay the amount required to continue the membership. Subsequently the motion was agreed to without dissent.

It was agreed that it should be made clear that the Institute would be glad to consider re-entering the ranks of the A.S.T.S. as soon as financial conditions permitted either as the result of an improved financial position or an altered constitution.

Conditions of Contract.—In reply to an inquiry, Mr. R. Howden advised Mr. H. Porter that the question of the revision of the Conditions of Contract was one affecting the profession throughout the Union and had been temporarily shelved pending the appointment of the Central Council of the Institute to which representatives from each Provincial Institute would be appointed. Several other matters such as Tender Envelopes, etc., were also in abeyance to be dealt with by the Central Council.

Annual Meetings.—Mr. D. M. Sinclair pointed out that certain members were under the impression that the old rule necessitating payment of subscriptions before attending any meeting of the Provincial Institute, was still in force and he thought that for subsequent meetings members should be notified that they may attend even though they may not be financially in good status.

In his closing remarks, the President referred to the Journal and asked for support from members by the submission of MSS and illustrations for publication, hoping that at an early date the Journal would receive an impetus by being published more frequently than at present.

The President further referred to the Annual Exhibition of the South African Academy and invited members to be represented in the architectural section of the forthcoming Exhibition in May next.

There being no further business the meeting terminated with a vote of thanks to the Retiring President for services rendered during his year of office and to Mr. F. Williamson for presiding.

THE CHAPTER OF SOUTH AFRICAN QUANTITY SURVEYORS.

Minutes of the Nineteenth Annual General Meeting held at the Town Hall, Pretoria, on Saturday, 3rd March, 1928, at 3 p.m.

Present.—Messrs. E. B. Farrow (President), H. Rowe Rowe (Vice-President), Messrs. H. Bell-John, N. Cowin, J. A. Cowling, J. W. Cowling, W. J. Clyde, C. H. Deighton, P. C. Dicey, A. S. Griffiths, R. Harrison, F. D. Hickman, G. E. Howgrave-Graham, C. Kent, D. Laing, A. Leitch, D. McCubbin, F. Moore, J. Paterson-Smyth, R. J. C. Prentice, W. E. Puntis, P. M. Roos, W. Selkirk, A. Springthorpe, S. Waters, S. C. Warren, I. Wayburne.

Apologies for absence were read from Messrs. W. Rhodes-Harrison and W. G. Thompson.

Notice convening the meeting was read by the Secretary.

Minutes of the Eighteenth Annual General Meeting were read by the Secretary and confirmed, being proposed and seconded by Messrs. F. D. Hickman and N. T. Cowin respectively.

Mr. Cowin inquired as to whether anything had been done regarding prizes to students as recommended at the last General Meeting. The President replied that owing to pressure of work in conjunction with the Architects and Quantity Surveyors' Act, this matter had reluctantly been held in abeyance.

At this stage Mr. Howgrave-Graham asked permission to address the meeting. He had come down, he said, mainly to wish members good-bye, preparatory to leaving for Europe on vacation. He wished members and the new Board to be appointed that afternoon a very happy and successful term, and thanked the Board for having honoured him by their nomination of him to the Vice-Presidential Chair.

The President, on behalf of the members present wished Mr. Howgrave-Graham Bon Voyage and expressed the hope that he would have a pleasant holiday.

Mr. Howgrave-Graham thereupon withdrew.

President's Address.—This having been circularised to all members prior to the Meeting, Mr. Moore, in moving its adoption, expressed thanks on behalf of himself and Mr. Babbs for the kind remarks contained therein regarding themselves.

Colonel Puntis seconded the motion and the adoption thereof was carried with acclamation.

Board's Report.—This also had been circularised previous to the Meeting and the President therefore only dealt with the various items requiring explanation.

With regard to the Associated Scientific and Technical Societies of S.A., the Board had made arrangements during the past term for the Chapter's continuance as one of the Constituent Societies up to June, 1928, only, thereby avoiding commitment of assessment fees for the whole year. The President now asked for an expression of opinion from the meeting whether or not the relationship should continue.

Mr. Cowin requested that the feeling of the Meeting should be tested regarding Secession from the A. S. and T. S., and moved "That in view of the increased membership of the Chapter and the consequent drain on the Chapter's resources it be an instruction from the Meeting to the incoming Board to arrange for the Secession of the Chapter from the A. S. and T. S., as from June 30th, 1928."

Mr. McCubbin seconded the motion.

Mr. Moore thought it would be desirable for the matter to be left to the new Board for decision. In his opinion the subscriptions to be derived from the increase in membership would make their continuance as one of the Constituent Societies possible, and he advised that the matter be left in abeyance.

Mr. Cowling spoke in support of Mr. Cowin's motion and Messrs. Hickman and Laing asked that the feeling of the Meeting be now tested.

On being put to the vote Mr. Cowin's motion was declared carried by 23 votes against 12.

Mr. Cowling drew attention to the heading "Secretary." In the past, he stated, he had always voted against any expenditure under this heading but he now wished to qualify those remarks and spoke most appreciatively of the services rendered by the Secretary especially during the past Session.

Balance Sheet.—The President introduced this by dealing with the items seriatim.

He stated that the total cost of passing the Act through Parliament up to the present has been approximately £4,050, of which amount the old Institute of Quantity Surveyors had contributed £454 odd. He understood that as far as the Chapter was concerned no further levies would be made.

In moving the adoption of the Council's Report and Balance Sheet, Mr. Moore spoke regarding the work done by the Minister of the Interior and the members of the Inaugural Board, particularly the Chairman, Dr. H. Reitz. He eulogised the work done by the Parliamentary members as a whole and by Messrs. Howden, Burton and Col. Puntis.

The Chapter, he said, owed a debt of gratitude to these gentlemen, in particular to Dr. Reitz, and he would like this to be recorded in the Minutes.

Mr. McCubbin seconded the motion and on being put to the vote the Report and Balance Sheet were adopted without any dissentient.

Election of Board.—As no further nominations beyond those made by the Board had been received, the President declared the following members duly elected to the Offices set opposite their respective names:—

As President, Mr. Rowe Rowe, F.C.I.A.; as Vice-President, Mr. G. E. Howgrave-Graham, F.S.I.; as Members of the Board, Messrs. H. Bell-John, F.S.I.; E. B. Farrow, F.S.I.; F. D. Hickman, P.A.S.I.; D. J. Laing; T. Moore, F.S.I.; W. E. Puntis, F.S.I.; and W. A. Springthorpe.

In vacating the Chair, the President spoke very highly of Mr. Rowe Rowe's services and long association with the Council of the Chapter, and asked members to give him (the new President) the same ungrudging support as they had extended him (Mr. Farrow) in the past.

Mr. Rowe Rowe then took the Presidential Chair and after welcoming the new members, thanked all members most sincerely for the honour bestowed upon him.

A copy of the President's inaugural address is annexed.

Mr. Cowling asked that the Chapter's gratification and thanks be recorded to Messrs. Babbs, Moore and Puntis, for their labours in connection with the Act.

Mr. McCubbin humourously referred to the inauguration of the Transvaal Institute since becoming the S.A. Institute of Quantity Surveyors when he acted as Secretary and stated that it was with pride that he now looked on the growth that had taken place since that time. He wished the new Chapter and members every success.

Mr. Moore associated himself with Mr. McCubbin's remarks and said that he wanted to pay a compliment to Mr. Bell-John whose energy and labours were mainly instrumental in the inauguration of the old Institute.

Mr. Cowin raised the question of local examinations for students in the future, to which Mr. Moore replied that the Institute had in the past conducted examinations in South Africa on behalf of the Surveyors Institution, Great Britain, but future examinations would probably be held in South Africa under the aegis of the Chapter and papers set and approved by the Minister of the Interior.

The President proposed a vote of thanks to the outgoing President, Mr. Farrow, and on behalf of the absent Vice-President, Mr. G. E. Howgrave-Graham, Col. Puntis seconded the proposal.

Mr. Farrow suitably responded.

Mr. Vice-President and Brother Quantity Surveyors:

"I shall not inflict many remarks on you on this occasion as generally the less said in the way of promises, which possibly may not be fulfilled, the better. I must, however, express my sincere appreciation of the honour, the very great honour, you have bestowed upon me by this unanimous election to the office of President of 'The Chapter of South African Quantity Surveyors,' the successor to the body known in the past as the 'South African Institute of Quantity Surveyors,' and which office has hitherto always been filled by worthy and prominent members of the profession.

"My own election, however, deserves special recognition, as being the first election since the passing of the 'The Architects and Quantity Surveyors' (Private) Act,' and for the reason that the outgoing members of the Board who nominated me for this position were, with the exception only of myself, all practising solely as Quantity Surveyors, whilst I was practising in the dual capacity of an Architect and Quantity Surveyor. Since this Act came into force our membership has been increased by some hundred or more members most of whom have been practising also in that dual capacity. I therefore sincerely appreciate, and I am sure all other members of the Chapter who practice in such dual capacity, will fully appreciate the friendly attitude so advanced by the nomination of a member practising in that dual capacity, as their President in the first election held after the passing of the Act. I sincerely hope that the brotherly, harmonious and friendly feeling so offered will always continue and will be the cause of even closer links between the two professions being forged in the future.

"I am grateful to have the assistance of Mr. Howgrave-Graham, F.S.I., as Vice-President, and trust at a later date you will have the pleasure of welcoming him to the onerous and honourable office of President. The past year has been a very arduous one and I am sure that your thanks are more than due to your past President, Mr. E. B. Farrow, for his own ungrudging services, in addition to those members of the Chapter mentioned in his Presidential address. As Mr. Howgrave-Graham, Vice-President, will be away on leave for a considerable period, I am glad to say that Mr. Farrow has kindly consented to assist me in that capacity during such absence.

"As regards the future, as you are all aware the Inaugural Board, on which such valuable services have been rendered by three of our members, Col. Puntis, Mr. Tom Moore and Mr. A. T. Babbs, has drafted a complete set of regulations consistent with the Act, which have received the acceptance and approval of the Minister. These regulations were published in the issue of the Government Gazette, dated 2nd March, 1928, and will forthwith be laid on the tables of both Houses of Parliament for a period of one month. They will then, provided no serious objections are raised, become Law. After promulgation your Board will have several important matters laid down therein to deal with, and these will receive careful attention. These regulations specially provide for the calling of a General Meeting within three months from the date of promulgation, when a new Board consisting of twelve members will be elected by all the members of the Chapter, and which Board will thereafter elect their own President and Vice-President. It therefore appears that the life of the present Board is not likely to exceed a period of more than about four months, the new Board then functioning for the remainder of the year.

"There is one very important matter pending which will have to receive our early and serious attention and that is the appointment of a Secretary to fill the post so ably held for many years by Mr. A. Loots, who owing to pressure of other business is unable to give the necessary time to carry on the necessary increased duties, but who has kindly consented to help us through with our work until other arrangements can be made. We cannot permanently trespass on Mr. Loots' kindness, and I would therefore ask the members of the Board as to whether a secretary should be appointed with headquarters in Pretoria, Johannesburg or elsewhere, whether an office should be taken and a whole-time secretary should be appointed with headquarters, but with permission say to undertake other secretarial work which must not interfere with our work, or whether some use could not be made of a secretary of some existing institution who may have all facilities and experience to immediately take over and carry on. It is a serious question and I ask you for your very careful consideration in the interest of the Chapter as a whole.

"I heartily welcome the new members here to-day and all others who have recently become members of the Chapter, especially those resident in Kenya and Rhodesia.

"Again I thank you for the trust you have placed in me and I promise to further the interests of the profession of Quantity Surveyors at all times to the best of my ability."

NOTES AND NEWS.

We deeply regret to record the death of Mr. Frank Parker, an old member of this Institute, which took place at Durban, on the 6th of February last. Mr. Parker, prior to setting up practice for himself in the Transvaal and subsequently in Durban, was connected with the Public Works' Department, Pretoria, for a lengthy period.

We have been requested by the Manager of the Telephone Branch of the Central Telegraph Office, Johannesburg, to ask members if they will kindly arrange for the Telephone Department to be advised as soon as decisions are arrived at to erect buildings to contain shops, flats, Professional Suites, offices or other units likely to be required to be connected by telephone in the Witwatersrand Area.

This information is vital to the interests of the owners and tenants as well as to the Telephone Department since it is necessary for sufficient material to be indented for far in advance of all applications for service and in order that new buildings may be properly catered for; members will therefore understand the necessity which prompts this appeal from the Telephone Department.

It is pleasing to record that two Johannesburg students in residence at the Liverpool University School of Architecture, have recently been successful in obtaining the premier positions in University examinations.

Mr. E. Gilham, formerly a pupil in the Johannesburg office of Messrs. Cowin, Powers and Ellis, and a student at the Witwatersrand University School of Architecture for three years under Professor G. E. Pearse, succeeded in winning the Houan Travelling Scholarship.

Mr. J. N. Cowin has been bracketted first with one other student in the Competition for the White Star Line Prize for a design for the Interior Decoration of a Liner.

The regulations made by the Inaugural Board in terms of section 9 of the Architects' and Quantity Surveyors' (Private) Act. No. 18, of 1927, were published in the Union Government Gazette No. 1689 issued on the 2nd March, 1928. These regulations were subsequently laid on the table of both Houses of Parliament and will remain there for one month.

Following assent to these regulations by Parliament they will have the force of law early in April, after which date it is understood that the Act and the regulations above referred to will be issued in the book form by the Institute. Members desirous of knowing the provisions made in these regulations should obtain a copy of the Gazette from the Government Printer at Pretoria.

The following 27 persons have been elected to membership of the Transvaal Provincial Institute of Architects.

F. Taylor, P.O. Box 588, Pretoria; H. L. Reitz, Town Engineer, Paarl, Cape; Norman Harvey, P.W.D., Union Building, Pretoria; L. H. Impey, P.W.D., Union Building, Pretoria; H. T. Barker, P.W.D., Union Building, Pretoria; G. R. Whale, P.W.D., Union Building, Pretoria; A. P. Hofman, P.O. Box 210, Pretoria; J. Pinker, Highlands, Val, Transvaal; Geo. Storrar, P.O. Box 440, Pretoria; George A. Stewart, P.O. Box 6672, 88, Fox Street, Johannesburg; T. S. Fitzsimons, Town Engineer, Boksburg; C. Wallace, 54, Kenmere Road, Yeoville, Johannesburg; R. R. Wealleans, P.O. Box 15, Brakpan; E. White, P.O. Box 8, Rondebosch, Cape; P. P. van der Merwe, P.O. Box 15, Brakpan; C. T. Schreve, P.O. Box 72, Potchefstroom; A. J. Lane, Room 160, S.A.R. Headquarters, Johannesburg; F. W. Dolley, 147, Hunter Street, Bellevue East, Johannesburg; E. de Lange, 49, Bisfik Street, Pretoria; R. W. Scott, P.W.D., New Law Courts, Johannesburg; J. F. Corbitt, Post Restante, Post Office Daspoort; Fred Drysdale, Room 95, Town Hall, Johannesburg; J. G. Carmichael, Room 95, Town Hall, Johannesburg; W. M. D. Stuart, 46, Kellner Street, Bloemfontein; T. A. T. Stromsoe, Olifants River Bridge Construction, P.O. Gompies, Via Potgietersrust; R. B. Graham, 45, Doris Streeet, Kensington, Johannesburg; Ernest Youatt, 135, Brooks Street, Pretoria.

CARNEGIE GIFT TO THE WITWATERSRAND UNIVERSITY SCHOOL OF ARCHITECTURE.

It is gratifying to be able to report that the Carnegie Corporation of New York is presenting to the School of Architecture of the University of the Witwatersrand a fine art teaching collection of photographs, prints and books. Dr. Keppel, the President of the Corporation, visited the University during last year and was particularly interested in the development of architectural and art teaching. As a result of this visit the Corporation has decided to send a collection, valued at about £1,000, details of which have now come to hand.

The collection—reproductions, original prints, textiles and books—is designed to stand as a systematic representation of the evolution of Occidental art. In it are shown the works of outstanding men, of different periods, different schools, different techniques and distinctive cultures. With such a collection an instructor can make his references in the concrete. He can illustrate a generalization. A student can have aesthetic truths visualized. The canons of art are studied in art's objects rather than in the abstract —which is the only way they can be understood. even if they can be studied otherwise.

The major unit of the collection is a set of 1,800 reproductions of the greatest works in architecture, sculpture and painting. Of these approximately one-quarter are in colour facsimile. They have been taken from the best collections of reproductions in the world where possible; where subjects wanted have not existed in reproduction special reproductions have been made for this purpose. In this collection are believed to be represented all the major currents in the stream of art—invididuals, periods, schools. The objects have been photographed in whole and in part, to show detail. The photographs vary in size from 8 by 10 to 16 by 20, with a few even larger, according to the subject, and are uniformly mounted; with labels giving the artist the setting of the work as to school and technique, something of the life and personality of the artist and that for which the work is distinguished. Some analysis also is given. The reproductions will be kept in a cabinet, which also is being provided.

The second unit is a set of fifty original prints, showing different processes of print-making and the work of different periods and notable men. These are nearly always from contemporary printings, but when more modern reproductions do greater justice to the atist they are used, as with some of the Whistlers. These begin with Burgmaier and Wolgemut, in the 15th century, cover the woodblocks of the 16th century and the engravings of the succeeding centuries and come down to the best work of the 19th century and our own times. In the earlier period are Urs Graf, Durer, Hans Leonhard Schaufelin and the engraved portraits of the 17th century. Among later men are Goya, Daumier, Richard Earlom, Delacroix, Meryon, Raffet, Corot, Manet, Turner, Whistler. For these, also mounted and labelled, a special portfolio is provided.

Third is a collection of 35 textiles dating from antiquity to our own day, chosen to illustrate design, colour, geography, period and technique, from Coptic tapestry weave to our own products. Here are shown pieces of primitive Congo weave, Indian kinkob and embroidery, Cashmere weave, Chinese tapestry, embroidery, brocade and damask, Manila weave, Bolivian and Central American fabrics, Near Eastern rugs, Greek embroideries, Morocco embroideries, 16th century velvets, French velvets and brocade, Russian weave, Indian prints, English cotton prints, Paisley shawls and modern printed silks.

The books constitute a good working library in the history of art and the analysis of all the arts, including decoration and the decoration of the theatre. They are in English, French and German, some of them equally valuable in text and reproduction; some on the arts in general, some on definite arts, some on special periods, others on individuals. The art book shops of the art capitals of the world have been combed to get twenty copies of each work, some of which are rare.

Finally, there is a catalogue, annotated in some detail, which is itself an admirable example of the graphic arts.

The only condition on which the college gets the collections is that it use the material for teaching and set aside a suitable room for the collection and use it as a centre of art activities in the college.

The special committee on selection which has assisted the Carnegie Corporation in bringing together the collection consisted of Miss Edith Abbot, Martin Birnbaum, William Clifford, Miss Alice L. Felton, Frank J. Mather, Jr., Miss Frances Morris, Henry W. Kent, John Shapley, David Keppel and Frank Weitenkampf. Rudolf Lesch, of New York, was commissioned to go to Europe to get the photographic reproductions needed and in doing so covered every art centre from Constantinople to Madrid. Miss Frances Morris of the Metropolitan Museum was in charge of the textiles. The books have been brought together by E. Weyhe, and Professor John Shapley has edited and prepared the catalogue.

The Architectural profession in Johannesburg is now splendidly equipped with works of art, books, photographs, etc. In our Public Library we have the Michaelis collection of books on Art and Architecture, presented to the Art Gallery and selected on the advice of Sir E. Lutyens and Sir H. Baker. In addition to this the Library is constantly supplementing its own architectural collection with up-to-date publications.

At the University we have the J. M. Solomon collection so generously purchased by the Association of Transvaal Architects, Lady Phillips and the Council of Education, and now this new gift which will be arriving in the near future.

These latter collections are available to practising architects and it is hoped that as they become better known they will be more frequently referred to and appreciated.

G. E. PEARSE.

THE TEMPLES OF THE GODS.

G. E. PEARSE.

(continued).

BUDDHISM.

Buddhism, the religion which was the first great bond of union among the Indian races was founded by Gotama or Buddha, the "Enlightened" (B.C. 623-543), who, from the age of thirty-five, spent his life in preaching his new found faith.

The Emperor Asoka (B.C. 272-227) adopted Buddhism and made it the State religion, as Constantine did with Christianity in the West and so it remained until A.D. 750 nearly a thousand years.

To his reign can be traced most of the buildings connected with this religion, sacred buildings not built originally as temples to Gods but monasteries or memorial shrines to holy men.

Relic worship, which was an essential feature of the Buddhist religion, necessitated the erection of *"topes"* or *"stupas"* to contain relics of saints. The non-Aryan peoples of India introduced tree and serpent worship which is responsible for many decorative emblems such as seven headed serpents, and the celebrated Bo—tree which, in Ceylon, has been worshipped for over 2,000 years. It was whilst sitting under a Bo-tree (wild fig) that Gotama's mind became restful and cool and he discovered what he believed to be the cause and cure of suffering. The Bo-tree thus became famous and was an object of devotion. The monuments connected with this religion were "Topes" or "Stupas"—mounds which were erected to give importance to some sacred spot.

The Chaityas or Temples recall the rock cut tombs of Egypt. In plan they are like a three-aisled Cathedral with semi-circular apse, containing the shrine, at the end farthest from the entrance. The roofs are hewn to a semi-circular form with ribs resembling timber work. In many an entrance screen of wood was employed through which the only light was admitted.

The Rock cut Temple at Karli is the finest Buddhist shrine in India. A broad aisle runs right round. The curved rafters are of wood 1800 years old, as is the great umbrella over the Stupa.

Shwe Dajon, Buddha's Greatest shrine in Burmah, was built to house eight hairs from Buddha's head. The stairs leading to the great shrine are covered by a rising series of superbly carved teak roofs, supported on columns of wood and masonry. After a climb of 166 feet the pilgrim comes upon the great platform from which the huge bell shaped Stupa or Pagoda, 1,355 feet in circumferance at the base rises to a height of 370 feet. It is built of brick over the relic chamber and is gilded from base to summit. It is crowned with a golden umbrella supporting innumerable silver bells.

MAHOMMEDAN.

The Mahometan faith, founded by Mahomet (A.D. 570-632), was the last of the three great religions which have arisen from among the Semitic nations, and its essence is contained in the words from the Koran. "There is no God but Allah and Mahomet is His prophet."

The character of the buildings of this religion is difficult to describe because of its variation in countries whose inhabitants differed widely in origin and where already existing types of architecture influenced that of the Saracen invaders.

The chief building was the Mosque (Arabic: Mesgid—a place for prostration), the essential requirements being a large enclosure, rectangular on plan with central fountain for ablution as enjoined by the Koran. This court occupies a similar position to the atrium of the early Christian basilican church. Around this open space were roofed arcades or colonnades for protection from the sun. The side towards

Mecca which formed the prayer chamber or Mosque proper, and was the most frequented. part,. was generally of extra depth. In the wall towards Mecca is the "mihrab" (niche) in which the "kibleh" indicates the direction of Mecca. The mimbar (pulpit) stands alongside while near at hand is the "dikka" or tribune from which the "unam" reads passages from the Koran and intones the prayers.

Minarets accentuate certain portions of the plan. Another type of Mosque was founded on the Byzantine model, the Mosque proper being an independent building entered through a court e.g., S. Sophia.

The prohibition of the use in decoration and sculpture of human and animal forms probably led to the intricate geometrical surface decoration known as "Arabesques" a form of ornament largely derived from Byzantine art.

HINDUISM.

The modern Hindu religion generally known as the Brahmanical, from the name of the priestly order dates from about A.D. 750. It was a joint product of the Vedic cult, Buddhism and Brahmanism and was, in reality, a social league resting upon caste, a complicated system of division of the people according to race, occupation and geographical position. Each caste became as it were a trade guild to whose care was entrusted the manufactures, decorative arts and working in precious stones.

Monastic life had ceased with the decay of Buddhism and, therefore, monasteries were replaced by columnar halls which sheltered pilgrims and there were sacred lakes occasionally surrounded by porticoes.

The earliest temples were of bamboo and thatch with an earthenware pot on the apex of the structure to keep out the rain. The later temples in brick or stone show a similar form of building.

The temples vary, there being three distinct types, each consisting of a vimana or shrine cell and an entrance porch.

(a) The Northern Hindu temple has a curved pyramidal roof over the vimana and the entrance porch has no columns. The plan is cruciform.
(b) The Chalukyan (Central India) takes features from N. & S. The plan is Star shaped.
(c) The Dravidian (S. India) has the vimana crowned by stepped pyramids, each storey ornamented with cells.

The "gopuras" or gateways to the temple enclosures recall the pylons of Egyptian temples and the "choultries" or columned halls are akin to the Egyptian hypostyle halls.

JAINISM OR JAINA.

This religion, which seems to have been founded on Buddhism, rose to importance about A.D. 1000 and a statue of one of the 24 Jainas or Saints with its distinctive sign, such as a bull, elephant, monkey, crocodile, rhinoceros or lion is placed in each temple.

The extraordinary number of image cells, 236 in one building has led to the supposition that the Jainas believed the particular saint to whom the temple was dedicated was honoured in direct ratio to the number of his statues. They also regarded temple building as a virtue ensuring a happy future state and this led to the endowment of temples by private individuals. These buildings are conspicuous by numbers rather than by architectural importance.

Temples have an entrance porch or hall generally cruciform on plan and columns with bracket capitals and angular struts, which support domes often of various heights and invariably built in horizontal courses of stone which, exerting no lateral thrust, are supported on columns without the aid of buttresses.

The interior thus presents a light and graceful character. Then comes a small vimana or idol cell, containing the cross legged figure of the saint. It is lit only from the door and is crowned with a "sikra" or imposing pyramidal storeyed tower with curvilinear sides recalling the Chaldean Ziggurats. Sculptured ornaments of grotesque and symbolic design bewildering in their richness cover the whole structure. The temples were picturesquely perched on mountain tops or nestled in secluded valleys as the Jainas set a high value on the effect of environment on architecture. The larger temples are enclosed by a wall, along the inner side of which are the numerous image cells which open on to the internal court.

Reference books: Breasted: A History of Egypt. Gardner: Principles of Greek Art. Hammerton: Outlines of the Past.

DENGUE FEVER AND DEFECTIVE GUTTERINGS.

F. G. CAWSTON, M.D., Cantab.

The recent outbreak of dengue fever, which resulted in the illness of something like 30,000 persons at the Natal coast, has drawn attention to the defective guttering in many residences, for those species of mosquito which are known to be associated with the spread of this fever are most liable to breed in and around dwellings, and, during last summer, there was a great plague of them throughout the infected districts.

A glance at the gutterings that have been constructed around the roofs of houses shows the large number which are eroded and a great proportion which are seen to slope in the wrong direction for a greater or less part of their length. To obviate this undersirable state of affairs, it is suggested that by-laws be introduced which shall prevent the erection of any new buildings in mosquito areas where the gutterings are not made and kept on a decided slope. It is not necessary that the slope should be an unsightly one; but, if effective, it would not only allow for good drainage after rain, but materially prolong the life of the gutter. The continual use of ladders to keep unsatisfactory gutterings clear of stagnant water and collections of leaves only tends to put the gutterings out of shape, as is not uncommon as a result of painting the roof

and gutterings. Economy in the construction of downpipes is also detrimental to the life of a gutter and it is considered that, in mosquito areas at any rate, there should be a down-pipe to every 24 feet of eaves piping. In a 48 foot length, this would mean that the guttering would slope from each end towards the centre. The practice of allowing more than one length of guttering to join, so that the roof of two or more sides of a house discharges through only one down-pipe is quite out of the question as providing efficient drainage for any building.

It would seem necessary that house-holders should allow trees to shade the back portion of their residences where the food-supply is commonly kept, even though this necessitates the occasional removal of twigs and leaves, which tend to fall into the guttering and interfere with good drainage.

Ornamental gutterings are especially liable to crack and erode or to get out of shape in tropical countries, where they are exposed to sudden and great changes of temperature, particularly if they are constructed, as is common, of metal lighter than that usually employed in cooler climates. For this reason, ornamental gutterings are better discarded in the construction of buildings in tropical and sub-tropical countries and smooth half-round guttering used in their place.

A slope of one inch in every twelve feet of guttering is a suitable one, or two inches from each end of a 48 foot wall. The use of the ordinary gutterings on such a slope will result in water splashing on to the wall towards the end of the slope on the inner side. To prevent this taking place, the guttering can be cut out of a sheet of metal broader at one end than the other. Where this is done with a six feet piece, 10 inches at one end and 12 inches at the other, there is obtained a gradual slope of one inch in every six feet of guttering as soon as the edges of the gutter are bent parallel and horizontal. As the upper edge is fixed in a horizontal position, the slight increase in depth of the guttering is hardly noticeable and is certainly not unsightly, whilst it ensures a constant and efficient drainage for surplus water from the roof of a dwelling-house. Gutterings fixed to large buildings are amply provided for by a drop of one inch in 12 feet; but, in crowded quarters, where it is so very essential to provide free drainage from the roofs of houses, it is better to provide, as above described, for a drop of one inch in every six feet of guttering.

Although the advantage of dispensing with all gutterings from houses being built in districts, where the presence of mosquitoes is so detrimental to the health of the inhabitants, is fully recognised, yet it is not considered that this course of action is necessary, provided an efficient drainage can be obtained from the use of good gutters.