Viganò, Zanuso, De Carli, Figini e Pollini, Minoletti, Michelucci, per fare solo alcuni nomi.

Ma—ed è qui che mi pare sia il caso d'insistere — anche in molte costruzioni di case d'abitazione, di villini, di chiese, l'elemento tecnico, inventato e suscitato dalle costruzioni ingegneresche, si è introdotto «di rimbalzo». Questo ci dice, ancora una volta, come in un'arte come l'architettura l'ordine d'incidenza dei fattori economici, tecnici, estetici avvenga secondo un percorso di solito orientato in questo senso: premessa economica, che conduce ad una scelta tecnica; premessa tecnica, che condiziona una resultante estetica; costituirsi d'uno « stile » (sia pur transitorio e facilmente consumabile) che persiste nella cornice d'una determinata forma, anche in assenza di elementi tecnico-economici che lo giustifichino; sintanto che nuovi impulsi tecnico-economici vengano assimilati da artisti più coscienti (o solo più fantasiosi e più rapidamente stanchi di moduli cristallizzati) i quali ne ricavino nuove, ed inedite, postulazioni

Questi principi che ho tracciato sin troppo schematicamente hanno trovato una equivalenza nei più recenti sviluppi del Disegno Industriale italiano, dove disegnatori della qualità d'un Nizzoli, Zanusso, Steiner, De Carli, Pinin Farina, Ponti, ecc., hanno realizzato in molti oggetti industriali delle sagome in cui le caratteristiche formali dipendevano in un primo tempo da esigenze techniche (il lato economico, in questo caso, è ovviamente sempre preminente) mentre in un secondo tempo, queste stesse caratteristiche formali persistevano anche dopo avvenuto un superamento tecnico della primitiva sagoma; oppure, invece, mutava la forma anche senza l'esigenza tecnica, per una sopraggiunta richiesta del mercato (economica dunque). In quest'ultimo caso — nel vasto settore della produzione industriale — potremo senz'altro ammettere una netta preminenza del fattore economico su quello tecnico-estetico.

Se per altro consideriamo come anche lo sconfinato panorama delle « arti pure » (pittura, scultura) rimanga influenzato dalle forme create dall'industria, e se riflettiamo come queste forme utilitarie possano di rimbalzo creare una sorta di pedana artistica — svincolata in un secondo tempo da ogni implicazione economica —, ci renderemo vieppiù conto come l'interferenza tra i tre fattori sia indissolubile — almeno nell'attuale fase sociale della nostra civilità — e come non si possa prescindere dal tenerne conto in qualsivoglia analisi della situazione artistica e culturale della nostra epoca.

Gillo A. Dorfles

1) Nous nous permettons d'ajouter que l'auteur de cet article a oublié de mentionner la contribution apportée à l'élaboration de l'architecture nouvelle en Italie, par son principal théoricien, notre collaborateur Alberto Sartoris, professeur d'architecture et d'histoire de l'art, dont les nombreux ouvrages, nous le rappelons, font autorité dans le monde.

Technique et esthétique de l'architecture contemporaine en Italie

Les rapports entre les arts et la technique ont été intimement liés depuis les débuts de l'activité créatrice humaine Mais l'évidente confusion, fréquente au début du siècle dernier entre les éléments décoratifs et les éléments constructifs, entre le renouvellement du style et le renouvellement des moyens techniques est encore loin d'être résolue de nos jours. En effet dans le vaste secteur de la production industrielle on est encore forcé d'admettre une certaine prédominence du facteur économique sur les facteurs techniques et esthétiques.

## Contemporary Danish Architecture

We Danes are a modest and quiet nation and may not always have been leaders in the architectural field. On the other hand we sometimes reveal a knack of diving into problems and adapting the results of others in a way which constitutes a valuable development.

Though we are not leaders in pioneer work we can, I modestly venture to say, boast of a high average cultural level. Socially, Denmark is not a country of great contrasts. There are not many poor people nor many very rich ones, but we have a middle-class which is firmly based both socially and culturally, and this is particularly reflected in our architecture. We own few of the important monuments of value in the history of architecture, but on the other hand we have not many wrechted dwellings such as are found elsewhere in the world.

In order to make a study of a foreign country's architecture it is essential to know a little of the possibilities and limitations imposed by existing circumstances. Architecture is not an isolated detail but an integral part of culture. A country's livelihood, its national and cultural traditions, and its access to raw materials are governing factors in all cultural development, including architecture.

Denmark has a total area of sixteen thousand five hundred and seventy-six square miles. It comprises the peninsula of Jutland, stretchning northward from the German frontier, and a large group of islands, of which the most important ones are Zealand, Funen, Lolland, Falster, Moen, and Bornholm. All told, there are approximately one hundred inhabited islands, and four hundred uninhabited.

Denmark proper has a population of four million people. The density of population is approximately eighty-eight inhabitants per square kilometer, which makes Denmark one of Europe's most—closely populated countries. Denmark is primarily an agricultural country and practically no raw materials are found here, they must be imported. Our industry, therefore, might be termed a refining or processing industry. Danish agriculture is based on small holdings. These dwarf-size farms give the country a character altogether different from those agricultural countries where farms of « broad acres » are prominent.

The climate is temperate, though windy; the harbours are usually ice-free all the year round. All in all, we have a typical insular climate with mild winters and not altogether dependable weather. Often there is a change from sunshine to rain several times a day.

The wind, the rain, and the flat terrain have naturally influenced Danish architecture. Danish houses are low. They follow the soft contours of the landscape and seek to evade the wind by keeping so close to the ground as possible. The typical roof is a saddle roof with ample slope to carry off the rain. These sloping roofs are a still greater necessity in the winter, for snow that falls during the night, when temperature is around freezing, will melt as soon as the sun ascends onto the sky, but in the early afternoon it is likely to freeze again. This continuous change from thaw to frost with only a few hours' interval naturally has a ruinous effect on flat roof surfaces where water from melting snow is slow to drain off. At any rate, in Denmark the modern flat roof demands special and expensive treatment.

The building material that has characterized Danish architecture since the middle of the twelfth century is fired clay, both as brick and roof tiling. Clay is found everywhere in the soil, and is processed locally at small brick-yards. Although Denmark has an extensive cement industry, and cement is one of our leading exports, it has been difficult for reinforced concrete to compete with brick — partly because reinforced concrete demands a fairly heavy import of iron, and partly because in our low type of building, reinforced concrete does not offer the same economic advantages as it does in a high building.

Naturally, circumstances are not as simple as I have outlined in the foregoing. Danish architecture is not solely determined by rain, and wind, and clay. Many distinctive architectural trends have spread more or less violently through Denmark, but all of them have sooner or later been adapted to Danish conditions and temperament. In Denmark it has been our good fortune to have a number of architects who, quietly and without official recognition—indeed often in opposition to popular and dominating opinion, have worked with a conception of architecture that has its roots far back in Danish architectural history, and which never descends to copy antiquated exterior forms. This trend strives for close relationship between contents and form.

Unlike many places in the world of to-day, Denmark is not faced with a violent upheaval in architectural forms of expression. We have here no tug-of war between those two opposing camps, viz. the modern school and the Beaux-Arts school. Among the more important historic buildings I shall mention two only.

The first one is Martin Nyrop's city hall which was in-

The first one is Martin Nyrop's city hall which was inaugurated on New Year's Day 1900. It introduces the period called «the national-romantic style» in Danish architecture, which, as a matter of fact, is a rather misleading name inasmuch as the style is not particularly Danish, but under influence of North Italian brick architecture, in many ways in line with Berlage's Exchange Building, Amsterdam. Nor is the Copenhagen city hall particularly romantic, on the contrary, at least compared to the preceding period, it is characterized by realism and genuine feeling for building materials. It is an important work, and popular as no other building in the city because its historically narrative decoration appeals to the ordinary man. The detail treatment is unusually fine.

The second example, and the one with closest relation to the architecture of to-day, is Jensen Klint's Grundtvig's Church in Bispebjerg, near Copenhagen. The church vas designed about 1917 and finished just before World War II. The architecture of Grundtvig's Church is in direct continuation of Danish church tradition. These village churches are typical of our extensive and anonymous architecture. Nearly all of these churches go back to Medieval times or Early Renaissance. Altogether we have about two thousand churches of this kind and they form the most valuable architectural treasure handed to us from the past. These churches are quite primitive buildings of stone or brick. And although they vary slightly in different parts of the country, they possess common features which make them distinctively Danish. In the eastern provinces the material is brick, frequently whitewashed, and red tile roofing predominates. In the western parts of Jutland the sterner granite is a characteristic feature. The roofs are very often covered with metal, lead being the most common, and in the course of time these roofs have turned quite

white and look splendid against a blue sky.
Jensen-Klint, who built the Grundtvig's Church, was a contemporary of Martin Nyrop, but he never attained the position in Danish architecture that he deserved. He was a rebel, difficult to get along with, and always in conflict with the prevailing taste. He did not build very much, and it was not until he was an old man that he got the opportunity to build this large church.

Fine craftmanship characterizes all his work. At times he forced this quality to heights which the present day cannot live up to. He had to train special masons to carry out the fine brick work. It was first and foremost Kaare Klint, his son, and Ivar Bentsen, his son-in-law, who carried on this tradition.

Kaare Klint built the Bethlehem Church, Copenhagen. It is an elaboration of a draft by his father and is even more carefully worked out in detail than his father's architecture.

Ivar Bentsen, who was a Professor at the Royal Academy of Fine Arts, Copenhagen, whereby he had also great influence on Danish architecture, followed in Klint's footsteps. He designed some church projects, still in a more stringent and sober style than the richly gabled architecture of Klint.

In 1906 Jensen-Klint designed a project for a national monument in North Zealand. It is one of his major works. The building is a « crystal knot » of square and octogonal towers built up in various heights. In later years this work has attained importance for architects of the present generation.

Professor Mogens Koch designed a project (Brejninge Church) for an octogonal village church, influenced by Klint's work.

In Aarhus university, which I built in collaboration with C.F. Møller, and Povl Stegmann, we likewise worked with polygonal forms. In its entire character Aarhus university, with its yellow brick walls and tiled roofs and in its cultivation of textural effects, carries on the line in Danish architecture which might be called « the Klint line ».

l acknowledge myself a pupil of Klint and two works of mine from later years reveal my debt to that interesting artist, viz. «Voldparken» and the school of «Voldparken».

The « Voldparken » is a large housing estate, typical of the sort of housing which the big public utility housing societies have built in recent years in many parts of the

Copenhagen area. Also these buildings are yellow brick, and with roofs and balconies of asbestos slates. This line is very dominating in Danish architecture to-day, and I want to mention two houses which show the influence that it had on the one-family house. The one was built by H.E. Langkilde and Ib Martin Jensen, the other one by Tyge Hvass. It is a modest architectural style without pretentions or formalism and with natural regard to function. The windows are placed where they are needed. Both houses are orientated with regard to the sun and their function is reflected in the exteriors. Even the smallest houses are characterized by this conception. Poul Erik Skriver's houses are closely related to the old Danish type of house found in the country. Like the old houses they answer to their purpose, and are just as rational and just as naturally determined by their functions.

The very finest example of this trend is the large housing estate, the «Søndergaardsparken», which was designed by Hoff and Windinge. It is Denmark's first attempt at social housing consisting of low houses in parklike surroundings to be rented out like the usual multistoreyed apartment houses. The estate is now 5 or 6 years old and is even better looking to-day because the greenery that has grown up around it makes the whole place even more beautiful and human.

We also have an architecture which is determined more by timber than by brick. Professor Viggo Møller-Jensen has built some houses with studios for artists. Their character is rustic and primitive with facing and posts of rough wood.

Also many one-family houses are characterized by rustic timber, as is seen in houses by Aage Paludan and Juul-Møller.

Houses built entirely of wood are quite rare in Denmark, the reason being that the greater part of timber which we use has to be imported from Sweden and Finland, and it is therefore a rather expensive building material. Often, however, it is used in week-end houses as for instance in that of Ole Hagen in Rungsted.

A one-family house in Gentofte by Mogens Lassen and Harald Plum has an interior very similar to Ole Hagen's. The house is located on a slope which is quite unusual in Denmark where there are no mountains and hardly any hills. It is built into the slope and the rooms are on different levels.

All the examples I have mentioned could be described as representing a national architectural trend. However, I do not like the term « national » applied to architecture. In my opinion it is a wrong conception, for an architectural form is not conditioned by casual frontiers politically established. Instead of interesting ourselves in a national architecture we ought to try to create an international but regional architecture, for the factors which determine the art of building, namely climate, materials, constructional methods, and the mentality of the population, may be alike in several countries, and such countries should naturally have the same form of architecture, while countries with vast areas extending over widely different climatic zones, like the United States and Russia, for example, must naturally have a varied architecture.

Concurrently with this national trend we have naturally had also an international trend.

The Public Trustee building in Copenhagen, built by Fritz Schlegel, and the Shell House, by Vilhelm Lauritzen, are typical examples of this trend.

In our multi-storeyed housing examples are also found of foreign architectural influence, as in the handsome apartment house in Falkonerallé by Professor Viggo Møller-Jensen.

A vital and interesting variety of the ordinary multistoreyed house is the apartment block the "Svendebjerghus" by Mogens Jacobsen and Alex Poulsen. The building has split level floors which gives special interest to the exterior elevation. On the whole, this house is an excellent example of Danish bay-balcony combination which has been characteristic of Danish apartment house architecture for the past 25 years.

Danish apartment houses are ordinarily three or five stories high and usually built of brick. In later years, particularly after a revision of our building restrictions, we have been building many multi-storeyed houses as they do everywhere else in the world.

It is a question whether this type of house is particularly suitable for family dwellings. Personally I prefer low housing with gardens and play space for the children. Also as regards town planning it is questionable whether the high house is a desirable form. From an aesthetic

point of view, at any rate, these buildings should be placed in the landscape with the greatest care. The only advantage of the multi-storeyed house, as far as I can see, is that if the degree of density per acre of ground is the same as in low housing, large spaces are obtained between the houses which is of course very desirable. We have a number of examples of such housing built during the last few years.

The largest housing scheme of this kind is the "Bellahøj", designed by Dan Fink, Søgaard-Petersen, Eske Kristensen, and Ole Buhl.

During the years immediately before and after the war a great many public administration buildings were built in Denmark, especially town halls. Most of them were built by Arne Jacobsen who designed the town hall in Søllerod, near Copenhagen, in collaboration with Flemming Lassen <sup>1</sup>

For another Copenhagen suburb, Lyngby, Ib Martin Jensen and H.E. Langkilde designed a town hall with a concave facing square. Both of these buildings are concrete structures faced with Greenland marble.

Arne Jacobsen's newest work is the town hall in Rødovre, near Copenhagen. It is very international in form, a skeleton building with panels. Its details have been worked out with great refinement and assurance. Arne Jacobsen works more thoroughly and carefully with details than does anyone else. Every single detail has been carefully worked out, and Jacobsen's personal stamp is found on everything right down to the Mayor's inkwell.

The same elegance and refinement characterize the office building for Mesrs. Jespersen & Son in the centre of Copenhagen, also built by Arne Jacobsen. The metal stairway in the glass cylinder is especially of the utmost refinement.

Arne Jacobsen, who is one of the dominating names in modern Danish architecture, has also designed an interesting school, the Munkegaards school in Gentofte, near Copenhagen. It is a one-storey building with a system of gardens that are like outdoor classrooms. Two classrooms open on a walled-off garden which they share. The whole lay-out is very handsome. The small gardens are decorated with sculpture, classic as well as modern mixed together, and each garden is paved and planted differently. The classrooms have clearstory windows which admit daylight to the farthest corner of the rooms.

In Gladsaxe, likewise a suburb of Copenhagen, Eva and Nils Koppel have built a school which is also interesting. It is one storey high and the horizontal windows give a very powerful effect. The windows have adjustable sun screens.

During the past few years the international style, which had hitherto been very different from the traditional trend, has merged more and more into the latter. Actually, it is no longer possible to speak of two trends in Danish architecture, but only of one which might be called the functional tradition, i.e. an architecture which fulfills functional demands but not exaggeratedly, as during the heyday of functionalism, when architecture was supposed to express its functional programme in its exterior design. It is a healthy tendency which I find that we Danes should be happy to express in our architecture. We have not got the two great contrasts found in so many countries, viz. the Beaux-Arts architecture and a modern functional architecture. Neither have we in later years the contrast between a national and an international style. These characteristics have given Danish architecture a more harmonious development than we find in many other countries, and I shall end by mentioning some examples of this kind of architecture, built during the last two or three years.

One of the best examples is the house by Karen and Ebbe Clemmensen, the house which they live in themselves. The building is slightly curved and is built on a slope. The interiors are simple and beautiful with bast mats on the floors and board ceilings.

Eva and Nils Koppel have built a whole series of onefamily houses of the same character as the Clemmensens'. Harald Plum designed for himself a house which is likewise a typical example of this new tendency in Danish architecture.

Erik Chr. Sørensen, a very gifted young architect, three years ago designed the interesting one-family house "Villa Østerstrand", which is located on the coast north of Copenhagen out towards the Sound. It was

 Aarhus town hall in collaboration with Erik Moller, and Rødovre and Glostrup town halls.