

The Sociological Approach in Planning Workers' Housing : the Experience of Czechoslovakia

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The importance that the I.L.O. attaches to workers' housing has many times been emphasised. One special occasion was in 1961 when the International Labour Conference adopted the Recommendation concerning workers' housing in which it declared that it should be an objective of national policy "to promote... the construction of housing and related community facilities with a view to ensuring that adequate and decent housing accommodation and a suitable living environment are made available to all workers and their families". In the article below Jiří Musil describes what is being done in Czechoslovakia to draw up a long-term programme of dwelling construction that will not only meet technical and economic requirements but also take into account such essential factors as the structure and development of the family unit, the expected future changes in ways of living expected to result from modern work methods, the necessary independence of each family unit and of its individual members, and the encouragement that must be given to all to take part in the social life of the local community.

THE large-scale building of dwellings in Czechoslovakia began only three or four years after the end of the Second World War. By 1949 the number of dwellings that had been built was 71,000 ; between that date and 1959 it reached 509,000—an annual average of from 50,000 to 60,000 over the ten years. In 1958 the number of newly built dwellings was almost double that of 1949. During these years the population pressure was very strong ; the birth rate in Czechoslovakia remained very high : more than 20 live births per 1,000 inhabitants. A marked decrease set in only in the years 1957-59. As the needs of the new households were to be met first it was impossible to start improving the standard of housing as a whole or to undertake any large-scale clearance of substandard buildings.

A resolution of the Central Committee of the Communist Party of Czechoslovakia passed in 1959 declared that it was necessary to build 1.2 million dwellings during the period 1959-70 for the housing of 4.2 million persons. A plan was drawn up to cover three stages (see table I).

TABLE I. PLANNING FOR ERECTION OF DWELLINGS IN
CZECHOSLOVAKIA, 1959-70

Investor	No. of dwellings to be erected (In thousands)				Percentage of total of plan
	1959-60	1961-65	1966-70	Total	
State	74	200	200	474	39.5
Housing co-operatives or enterprises . . .	21	140	212	373	31.1
Agricultural co-operatives . . .	—	30	40	70	5.8
Private	48	110	125	283	23.6
Total	143	480	577	1,200	100.0

The purpose of this article however is not to dwell on considerations of an economic character but to show how social changes are projected.

The data in table I imply great changes in the lives of the people who are going to move into these new flats and houses. In most cases their move will mean going into a new town or a new large estate designed according to certain sociological ideas which will influence the lives of their inhabitants. The building of large estates had been a characteristic of Czechoslovak housing even before 1959. They were mainly in industrial areas (especially for metallurgy) and in coal-mining regions and the two most important of them now have about 40,000 inhabitants each. Many other estates were built in various parts of the country, for 10,000-20,000 inhabitants. This pattern of house building will be continued in the future.¹

This phenomenon of building large complex estates occurred in almost all European countries and has become a peculiarly European characteristic of post-war building. The sociological consequences of creating new towns and large estates arise partly from its wide spread and partly from the fact that the designers of such schemes base their plans not only on an analysis of existing

¹ See U.N.E.S.C.O.: *New Towns: a Selected and Annotated Bibliography*, compiled by Jean VIET (Paris, U.N.E.S.C.O., 1960).

current needs but also on a forecast of the assumed needs of the future population.

A wider sociological approach to house building is important because these dwellings will be in use for many decades—80-100 years, perhaps. For this reason it is imperative to base large-scale planning of housing on a long-term estimate of general housing conditions and patterns of living, not only for the years when the first users will be moving into their new homes but also for the years they will be spending in them.

Czechoslovakia's task of building 1.2 million dwellings in a relatively short period of time appeared to be feasible only if the construction was made as industrial in character as possible. The principle was therefore introduced of building dwellings that conformed to approved types and with the use of prefabricated, standardised elements. For many years the greater part of the construction of dwellings undertaken by the State, housing co-operatives and enterprises has been carried out in this manner. In 1956 it was 71.8 per cent. ; it rose in 1958 to 81.8 per cent. and in 1960 to 88.4 per cent.

The elaboration of these basic type designs follows a certain pattern, the result of years of experience. The period between the first experimental stage and the actual construction of new types is relatively long, about five years. This demands considerable foresight on the part of the research workers.

The first stage is devoted to research and study. Research, however, is continuous, although use is made of it only at certain times, when new types are being elaborated. Next come the experimental designs, construction and structures to confirm the findings of research. The third stage is the elaboration of a programme of types : in fact, a programme for the designing of a series of dwellings which are later to become approved types for a given period. The designing of the types themselves follows. And the fifth and last stage is the construction of the houses and dwellings according to these types.

Research is thus the starting point of the whole process of building dwellings, and in Czechoslovakia in this field it includes both technical and scientific branches. Technical research is made into the physical qualities of building materials, structure, ventilation and heating ; both technical and social aspects arise in the study of the lay-out of the dwellings and the economic problems related to the construction of dwellings ; and housing must also be studied from the point of view of the users—the sociology of housing. It is in the latter field that long-term estimates are made of more future trends in housing.

This sociological research applies the theoretical results of social science investigation to the technical branches and projects its results into the future.

Systematic work in the field of social research on housing has not a very long tradition ; that is why the sociology of housing is still seeking new and better methods. The experience of recent years shows that it is mainly the analysis of trends in the basic determinants of housing that has proved satisfactory. This analysis consists in determining logically the main factors—social, biological and technical—that influence housing ; in verifying experimentally their effects and importance ; and in deducing, from an analysis of these basic determinants, what changes will affect housing in the future and therefore ought to be taken into account in the technical aspects of the dwellings. The whole procedure may be illustrated by the following example : if an investigation of planned parenthood shows that the number of families intending to have more than two children is going to decrease considerably in the future, this fact must be reflected in the lay-out of the dwelling, especially in the number of bedrooms. This is of course an example of a simple relationship between sociological change and technical solution, but it shows the substance of this relationship and may serve as a pattern for more complicated cases, such as the consequences to the planning of housing of changes in the forms of labour.

The determinants influencing the trends of housing can be divided into two main groups : factors that are relatively stable and those that are highly variable. The changes in housing being due mainly to sociological and technical factors, it is the development of these variable factors that must be studied in the first place when considering prospects of future housing. Requirements or conditions of housing resulting from the basic physiological needs of the human being may be considered as relatively stable, and will not change radically in consequence of social development : they will not be dealt with in this article.

CLASSIFICATION OF SOCIAL FACTORS THAT WILL INFLUENCE HOUSING

Not taking into account the development of techniques that will undoubtedly continue to transform not only ways of living but ways of housing as well, sociological factors affecting housing can be grouped under two main headings, both of which can be subdivided.

In the first group are general social changes such as :

1. changes in the structure of settlements ;

2. evolution of the Socialist family ;
3. development of the structure of the household ;
4. changes in the method of work, consequences of longer leisure time, higher standard of living ;
5. development of communal services and shopping facilities.

The second group comprises socio-psychological needs : the need for—

1. privacy for the family and its members, possibility to pursue individual interests ;
2. social contacts in the dwelling and in the neighbourhood ;
3. sufficient space.

There are various methods of estimating the development of these factors. As to the general social changes, Czechoslovakia follows the method used in long-term planning in Socialist countries generally. Each of the various departments works out a long-term forecast of development which, together with those for the various territories, contributes to the general forecast of long-term development of the national economy. It is necessary to harmonise the estimates of development in housing with the estimates of development in other departments such as education or public health, since house building and methods of housing are dependent on them.

Besides these official data, surveys are made in Czechoslovakia of current methods of housing. These surveys supplement the census data about population, households and dwellings necessary to estimate housing needs. A thorough logical and statistical analysis of them not only shows the current condition of housing but also indicates convincingly the long-term trends. These larger surveys of housing, which include several hundreds or thousands of dwellings, are supplemented by special surveys of different kinds of housing (boarding-houses, detached one-family houses, etc.) and of experimental buildings with flats conceived untraditionally.

In recent years something new has been undertaken, the "Nation-wide Discussion on Housing", followed by a series of exhibitions in the ten largest towns in Czechoslovakia, showing models of new dwellings which are to be built from 1963 onwards. The exhibits were built to their normal size and were furnished ; visitors were allowed to go over them. Great numbers gave their personal opinions about the main problems of housing, criticised the drawbacks of various types of dwellings and recommended the solutions which they considered most satisfactory. The exhibitions of new types, where the visitors were to decide which was the best of the seven dwellings exhibited, were linked with an extensive

public opinion poll by means of questionnaires and personal discussions. In the questionnaires the public expressed their opinion as to the advantages and drawbacks of the various dwellings; which type they preferred, which in their opinion was the best layout, the most suitable place for serving meals, the most convenient provision for storage, the best form of shopping and laundry facilities, etc. As the questionnaires included personal data of visitors, their statistical analysis could distinguish between the opinions of various social groups (workers, clerks, housewives, etc.), of various age groups, or of the rural and the urban groups. About 100,000 persons took part in the discussion, 14,000 registered suggestions, 420,000 saw the exhibitions and 34,000 filled in the questionnaires.

CHANGES IN THE STRUCTURE OF SETTLEMENTS

The construction of large housing estates is one result of the building of large industrial plants, which concentrate the labour force. The analysis carried out by the Research Institute for Building and Architecture shows, however, that the structure of settlements does not correspond to the needs of a developed Socialist and industrial country. A few figures may serve as illustration.

At present, in the Czechoslovak Socialist Republic only 25.3 per cent. of the population live in towns with more than 20,000 inhabitants: in contrast, in the German Democratic Republic this ratio amounts to 40 per cent., in the Federal Republic of Germany to 47.2 per cent., in Austria to 42 per cent., and in Belgium to 32 per cent. In 1959 Czechoslovakia had 17 industrial workers per 100 inhabitants, while the German Democratic Republic had 16.8—a very similar proportion. But the latter country has about 15 per cent. more inhabitants living in towns with over 20,000 inhabitants. Czechoslovak long-term planning therefore stresses the need to strengthen the network of towns and to accelerate the speed of urbanisation, the pace of which has so far been too slow. The percentage of the urban population living in towns with more than 20,000 inhabitants, which was 17 in 1930 and 23.5 in 1950, had increased only to 25.3 in 1961.

The concentration of industry and the necessity to create centres suitable for town-planning will bring about the growth mainly of medium-sized and large towns of 20,000 to 100,000 inhabitants. No considerable growth of towns with over 100,000 inhabitants is expected, except for Košice, Bratislava and Ostrava. Hence it follows that the most active house building will be concentrated in the next few years in medium-sized towns; later on,

extensive clearance and reconstruction is to be carried out in all sizes of towns, particularly in the very largest.

The wide variety of conditions under which new dwellings will be built makes it necessary to prepare a greater number of types and to elaborate several alternatives for various urban and social conditions. A greater heterogeneity of types is needed also for other reasons, among which is the variety of the households which are to move into the new dwellings. Different conditions of town-planning under which new houses are to be built in future are, however, one of the main reasons for the designing of a richer assortment of dwelling and house types.

DEVELOPMENT OF THE SOCIALIST FAMILY

In recent years the further development of the family in the Czechoslovak Socialist Republic has been much discussed. The support of the family by the State does not imply the conservation of the traditional type of family. Studies will have to be undertaken of the long-term trends in the development of the family as a social institution and primary social group and of changes in its various functions; from these studies a forecast will be made of the development of the family in the future. For the construction of future dwellings it is an important matter that marriage and family will be integral components of Socialist society, representing its natural cell and the most frequent type of household. The mission of the family will be the reproduction of the human race, care and upbringing of children, provision for emotional life and the creation of a home and close personal relationships, necessary in modern civilisation. These basic functions of the family will be complemented, even in the future, by some economic functions and activities. It appears likely that a number of factors, such as the increased employment of women, a more intense care by society for children and the development of public services, will decrease the economic functions of the family, as in other industrial and urban societies. From being an institution the family will become a companionship of man, woman and child. In addition to the diminution of the economic functions of the family, its protective function will probably also dwindle, as well as its educational function.

These changes in the functions of the family will bring about changes in the functions of the dwelling. The importance of the economic elements of a dwelling, such as the kitchen, washing facilities, etc., will diminish in the future proportionally to the decrease of economic activity undertaken in the dwellings themselves. Analyses of long-term trends such as the growing habit of having meals out in restaurants, canteens, etc., show that such a

transformation will take place only gradually and the reduction of the economic elements in dwellings must adopt the same pace.

Factors of great importance to the further development of housing in Czechoslovakia are the changes that are going to transform the pattern of family life. Among these the most important are the growing employment of women, developments in the organisation of the care and education of children, the increase in leisure time and the changing relationship between the members of a family. Let us examine these factors more closely.

Although the employment of women in the Czechoslovak Socialist Republic has reached a very high level—one of the highest in the world—it is to be supposed that in the future even more housewives will join the workers. Existing estimates suggest that after 1975, from 75 to 80 per cent. of all Czechoslovak women of economically active age will be in employment.

The employment of women in the existing conditions of running a household leads to overburdening them. According to research done by Czechoslovak statistical authorities in 1960, women workers, employees and housewives spent the 24 hours of the day as shown in table II.

TABLE II. A CZECHOSLOVAK WOMAN'S DAY

Activity	Workers		Employees		Housewives	
	Hrs. Mins.	Per cent.	Hrs. Mins.	Per cent.	Hrs. Mins.	Per cent.
At work	7 20	30.6	7 11	29.9	0 54	3.7
Housework	4 37	19.3	4 07	17.2	8 12	34.2
Other activities . . .	3 45	15.7	4 26	18.4	5 11	21.7
Leisure	1 10	4.9	1 10	4.9	1 51	7.7
Sleep	7 08	29.5	7 06	29.6	7 52	32.7

Source: "Time Budget of Non-Agricultural Households", in *Československa statistika* (Prague), Group B, Vol. 1, 1961.

Czechoslovak as well as foreign investigations show that employed women work longer hours than housewives. According to one of these surveys housewives work 63.3 hours weekly, partly-employed women 77.4 hours and fully-employed women 86 hours. French studies showed that employed women work from 81 to 85 hours per week according to the number of their children; which is at the limit of physiological possibility.

Because the major part of housework is the preparation of food, shopping and washing up, it follows that means of limiting unproductive housework must be sought in mechanisation, a sound

design of housing estates and the development of communal services.

There are of course economic means of relieving women of domestic work, which specialists in the rationalisation of management claim consumes an enormous amount of time. Among these is the taking of meals outside the home, which implies a further increase of real incomes and an extension of public services. These problems must be approached realistically, as when the Research Institute for Building and Architecture, in accordance with long-term projections of development of the national economy in Czechoslovakia, assumed that until 1980, 70 per cent. and more of all meals will be consumed in individual homes. At present in Czechoslovakia 1.3 million working people out of 6 million use canteens. It is only in a more remote future that this proportion is expected to decrease to 50-60 per cent., although it may come somewhat earlier in cities, with their easier access of restaurants and canteens and because of an increase in the number of school and enterprise canteens.

When considering this problem at the nation-wide conference on long-term improvement of the standard of living, held in 1959, Czechoslovak specialists in nutrition agreed that it would not be biologically advantageous completely to eliminate individual cooking. This means that part of the work connected with the preparation and consumption of food will continue to be done in individual homes. The extent of this work will depend, of course, on the household itself, for there would certainly be in this respect a difference between childless young couples and families with small children.

The gradual increase in the number of persons who take their midday meal outside their home will mean that the preparation of food at home will be more and more restricted to breakfast and one other meal daily.

The amount of housework to be done, which influences not only the type of housing but also the daily round of most women and, in part, of men and children, will be reduced in the future by various measures.

In the near future time-saving devices will be improved to enable members of the family themselves to do the housework as easily and quickly as possible. At the same time as the rationalisation of domestic work, the production of partly-prepared foods is to be developed as well as of biologically well-preserved food, the preparation of which requires very little time.

In the long run account must be taken of the development of paid (and, later on, unpaid) public services. These ought gradually

to replace individual washing, mending, ironing and some forms of cleaning-up. The sociological change of the family into a democratic group will probably lead to a more equitable division of the domestic chores among all its members.

One of the most discussed problems connected with the development of housing is that of the organisation of the care and education of children. The urgency of this problem results partly from the social changes caused by the growing employment of women in industrial countries, partly from the development of educational conceptions, and partly from the aims which a Socialist society sets itself. The organisation of child care closely affects styles of housing, as upon the interpretation of its expected consequences depends the solution of a number of technical problems, such as the decisions as to the number of children's bedrooms, the sanitary equipment of the dwellings, the size of the storage area, leaving space for perambulators in houses, locating of playgrounds in the vicinity of houses, etc.

After several years of pedagogic, pediatric and sociological research and discussions in which experts in social, biological and technical sciences took part, the following theory has been crystallised in the Czechoslovak Socialist Republic.

The further development of education and child care will be based on two factors: family and society. The share of society in bringing up children will increase not only in as far as material care is concerned (providing free meals, books and means of instruction) but in education as well. At the same time the educational function of the family will be extended, as it is one of the most important elements in the emotional and moral upbringing of children. The shortening of working hours in the future will be one method of enabling parents to have more contact with their children.

Long-term social targets assume that the number of places in crèches and nursery schools will grow rapidly. The obligatory attendance of nursery schools by five-year-old children is planned after 1970, and it is expected to be possible by 1980 to place the majority of three-year-old to five-year-old children in nursery schools. One nursery school teacher would then teach about 15 children. Long-term plans for developing crèches also assume an increase in number, although exact figures have not yet been fixed.

It is planned to prolong compulsory school attendance and also to increase the number of pupils in technical and similar medium-level schools. The number of high-school students is also to rise.

With the increasing number of young people studying at technical and high schools, the methods of instruction and education

are going to change, too, as well as the conception of school itself. It is expected that schools with prolonged care (those where children stay after class, prepare their homework and play under supervision) will be extended and the number of boarding-schools increased. The latter, however, will be set up only when necessary. This applies mainly to certain professional and technical schools attended by children over 15 years of age.

What will be the effect on housing of these long-term trends in education and child care? It can be generally said that in this sphere, too, the functions of the family and society in Czechoslovakia will intermingle, neither assuming all the functions exclusively. In this division of labour the family fulfils mainly that part of education requiring an individual approach and emotional attachment between child and parent. It is true that from the economic point of view this is very expensive but from wider social aspects, taking into account the emotional and moral development of the personality, this conception is undoubtedly higher than a one-sided stressing of the purely familial or the exclusively collective education.

A consequence of this conception is that long-term forecasts of the structure of dwellings assume that children will live in their parents' homes up to a relatively mature age—boys practically until their military service and the majority of girls until their marriage. The prolongation of obligatory school attendance and the increasing number of high-school and technical school students are also likely to prolong the period for which young people live with their families. Paediatricians insist on the need for children to have rooms in their homes, even in families where they are in boarding-schools, as such children psychologically need to feel that they have a home. In plans for new types of dwellings to be built after 1970, children's bedrooms are provided and dwellings are designed to meet children's needs as well as their parents. The need for hygienically and psychologically adequate provision of separate rooms for children is stressed. It has not yet been decided whether it is necessary to separate siblings of opposite sex; some medical experts consider such separation unnecessary before puberty and, with proper education, even in adolescence, whereas others energetically demand separate bedrooms for adolescents of opposite sex.

Another important need is to have crèches, day nurseries and primary schools very near to the homes. Stress is laid on close co-operation between these institutions and the mothers, so as to maintain the contact between mother and child. The child must feel that he is part of the local community, of which his home is a component and of which his parents and the nurses and teachers

are members. From this point of view, facilities for children set up in enterprises are considered less satisfactory. Enterprises are advised to provide them in places where the majority of their employees live, not where they work.

The development of the family as an element of modern industrial and urban society also implies changes in the relationship between the individual family members. Sociological research on family and housing undertaken in various countries shows that a differentiation of interests exists between the individual members of a family. The older traditional family spent much more time together than the modern family, which is characterised by the need for the development of individual personalities. Although the family in modern urban society still appears to be the main place for informal social contacts, it is evident that the sphere of social activities of its individual members has considerably widened, and this has also extended and differentiated their interests. This is true mainly of women and children. These internal social changes within the family imply that the dwelling of the future will have to be suited to the collective life of the family and at the same time enable its respective members to pursue their individual interests: which may, of course, be heterogeneous and even opposed. Generally speaking, the best solution would be to provide a bed-sitting room for each adult.

DEMOGRAPHIC CHANGES

These considerations about the family and its requirements lead us to a very important social determinant of future housing; the composition of households and its probable development. A knowledge of the composition of households is very important for the preparation of new types of dwelling. This structure varies quantitatively according to the number of persons and qualitatively according to their sociological characteristics: purely familial households of husband and wife or parents and children, or three-generation households with one or two grandparents, or families in which members other than of the nuclear family live. From these data on the composition of households the size and the number of rooms of the new dwellings are determined. The qualitative composition is the starting-point for the determination of the relative proportions of different kinds of dwellings, that is, the various possible lay-outs for a given space. At the first nationwide discussion about housing many citizens criticised the small variety of dwellings and asked for an increase in the number of types or kinds.

The average size of households, and hence their quantitative structure, is determined by three main factors: the fertility of women; the length of time during which children live with their parents; and the quantity of dwellings available.

Surveys carried out in 1960 into planned parenthood and the fertility of women showed what Czech and Slovak families considered to be the desirable number of children (see table III). These data—among others—were used for the calculation of the size and composition of new dwellings.

TABLE III. NUMBER OF CHILDREN DESIRED BY PARENTS IN CZECHOSLOVAKIA

Territory	Percentage of parents wishing to have—				
	No children	One child	Two children	Three children	Four or more
<i>Czechoslovakia</i>	1.2	9.2	48.6	27.5	13.5
Bohemia and Moravia . .	1.3	10.1	51.2	24.8	12.6
Slovakia	0.7	6.3	39.8	36.7	16.5

One fact taken into consideration when determining the most suitable composition of dwellings according to the number of persons is the larger average size of households. This feature is due to the fact that new dwellings are occupied mainly by younger people of reproductive age who have small children. One important demographic survey in Czechoslovakia showed that the average size of households in older houses built before 1945 was 3.2, whereas in new estates it was 3.9.

The mere existence of different sizes of households makes the building of various kinds of dwellings necessary. Households of the same size, however, differ in sociological structure. It has been found, for instance, that of the category of households of five members, about 75 per cent. consist of parents and children only and 25 per cent. of the nuclear family plus one or more further persons. The larger the household, the less its purely familial character. The present situation, however, cannot provide decisive guidance for the future and therefore Czechoslovak research is trying to estimate the basic long-term trend in the qualitative structure of households.

The main tendency apparent from available data in the development of the qualitative structure of Czechoslovak households may be summed up in five points:

1. The proportion of nuclear families (households consisting only of parents and children or of a married couple) is going to increase.

2. The proportion of households consisting of three generations will slowly decrease, but in the near future it is not expected to drop below 5 per cent. of the total number of households.

3. The proportions of incomplete families (one parent with one or more children) and of non-homogeneous small families (e.g., two sisters) will decrease in the future.

4. The number of small households of older married couples after their children have left home is going to become greater as a result of the increased expectation of life.

5. The proportion of one-person households will increase in consequence of the improvement of the housing situation and of the increased expectation of life.

These trends, expressed numerically, serve as a starting point for the long-term planning of the construction of dwellings. The qualitative structure of households is taken into account not only in economic planning but also in the designing of types of housing. The fact that in present conditions a relatively large proportion of households of five and more members consists of a group of persons not representing the nuclear family, means that dwellings for such large households should be suitably designed and equipped—for example, access to bedrooms from corridors, the isolation of one bedroom, duplicate sanitary equipment, etc.

A final remark regarding household composition concerns the phases of the evolution of households in large new housing estates. As these estates are going to house young inhabitants, mainly families with children, a two-generation structure of population will arise there, with the age groups of 24-40 and 0-10 years prevailing. This anomalous age structure is the cause of the fluctuation in the number of children's facilities required and in the average size of households over a number of years. The average size of households is usually at its greatest between the fifth and tenth year following the building of the estate, when it is from 3.7 to 4.1 persons per dwelling, after which it begins to drop. After a number of years, if there is no considerable moving in and out, the average size of households will increase again. This variable size of households has led Czechoslovak architects to consider the designing and building of a larger number of "elastic" or adaptable flats, the over-all area of which can be increased by adding another room or by uniting two dwellings into one. The principle of adaptability of housing stock is becoming one of the main features in planning future house building.

INDIRECT SOCIAL INFLUENCES

The choice as to the kind and lay-out of flats to be built is dictated mainly by the analysis of the family structure of Czechoslovak households. Nevertheless, housing as a social function is also subject to the influence of factors that affect it indirectly, such as changes in methods of work, the consequences of longer leisure time, the higher standard of living and the development of public services.

Long-term plans for the development of the Czechoslovak national economy show that among the branches that are going to develop most speedily are the metallurgical, the engineering and the chemical industries, which have a considerable amount of shift-work and automation. These two tendencies will be reflected in the growth of the number of shift-workers working in two and, where necessary, in three shifts. Automation leads to new kinds of fatigue, the effects of which must be compensated by rest in a quiet environment. The increased number of shift-workers will necessitate the provision of dwellings and groups of houses where workers (some of whom—miners, smelters, etc.—have to work at night) can secure undisturbed sleep and relaxation.

Although forecasts of the distant future do not include night shifts, it is necessary for the time being to take them into account in preparing at least some of the dwelling types. It is of course not only the lay-out of the flat itself that matters, but also the surroundings of the building, the location of playgrounds, etc. Badly located play-spaces and traffic roads in miners' estates have already created difficulties.

The design of dwellings will also be changed by higher technical standards of work, automation and the workers' need for home study. Provision will have to be made in flats for a quiet place for study and in dwellings and their immediate proximity for opportunities to relax and compensate nervous fatigue. An improvement in the architectural setting of homes is urgently needed because the expected shortening of working hours will shift the focus of social life to the home.¹

Pleasant green spaces should surround the dwellings, where various kinds of sports not requiring much space could be enjoyed and where the occupiers could find individual and collective recreation.

The remedying of the housing shortage and the improvement of housing stock on a nation-wide scale constitute in themselves an

¹ A survey of an international investigation of the consequences of increasing leisure time is given in a special number of the *International Social Science Journal* (Paris, U.N.E.S.C.O.), Vol. 12, No. 4, 1960.

important improvement in the people's standard of living. The development of other aspects of that standard, on the other hand, influences the styles of housing and hence the design of dwellings. In general a higher standard of living leads to the pressing of claims in spheres other than basic needs : this means that more attention is paid to housing standards and consumers concentrate more on the quality of their dwellings and furniture.

It must be borne in mind in designing new types of houses that a further increase in the consumption of industrial products and textiles is foreseen in long-term prospects. Towards the middle of the sixties, it is expected that there will be one refrigerator per three families, one television set per 1.8 families and one small washing machine per 1.5 families. More people will own musical instruments, cameras, film projectors, etc. All these objects must be adequately installed or stored. This means that storage space for such equipment must be increased ; on the other hand, it seems that storage space for food could perhaps be somewhat reduced in future, if shops have larger, hygienic storage facilities.

A question that is being very much discussed in connection with the improved standard of living is that of labour-saving devices in the home, to ease and shorten domestic work. The problem of housework may be tackled in two ways : either by extending paid and unpaid public services, which would gradually take over the economic functions of a household, or by equipping homes with labour-saving devices. The better solution would be undoubtedly the first ; but it depends on various economic factors such as family incomes on the one hand and the need for manpower on the other. For public services require a great number of workers, who are more urgently needed at present and in the near future, in the primary and secondary sectors of the national economy. For that reason planners of types of dwellings to be built after 1970 consider that paid or unpaid services will not be able to take over all (or even the more important part) of the housework of their inhabitants. For years to come domestic work will probably be performed chiefly by the members of the households themselves and consequently it is advantageous to produce labour-saving devices on a mass scale, so as to make the work as easy as possible. That does not mean, however, that public services will not be simultaneously extended. A rapid development of services will take place, in fact, in such sectors as washing and ironing, dry-cleaning, and ready-to-cook food.

To do the washing at home is not satisfactory as a long-term prospect, but it will have to be reckoned with in the immediate future. The designers of new types of dwellings are therefore

complying with the wish of the people, as expressed at the national discussion on housing, to provide sufficient space in the bathroom for a washing machine.

Another great problem is that of keeping the rooms clean. One valuable way to reduce the time spent in cleaning-up is the use of modern furniture and equipment, such as washable floors, plastic floor materials, washable wall-paper and carpets, etc. Already much time is saved in new dwellings because of their high standard of technical equipment. In state dwelling construction in 1960, 73 per cent. of the flats had gas laid on, 83.1 per cent. a hot water supply, 78.7 per cent. central heating, 76.4 per cent. both central heating and a hot water supply, all the flats had bathrooms and 88.7 per cent. of the houses had modern mechanised laundries.

As to the development of canteen facilities, the shortening of working hours will mean that they will have to be provided close to dwellings, and the building of new-style restaurants in residential units is already being prepared. These canteens will cater not only for employers but for their families as well.

These communal services will not be employed to the same extent in every kind of house. In the old-style houses they will be used somewhat less than in the boarding-houses that are now beginning to be built on a larger scale than in the past. The inhabitants of these boarding-houses are mostly single persons or married couples who enjoy the advantages offered by this type of house, such as daily cleaning of rooms, washing and mending, the changing of bed-clothes, and meals in a restaurant in the building itself or nearby.

PSYCHOLOGICAL AND SOCIOLOGICAL CLAIMS ON THE QUALITY OF DWELLINGS

The last complex of factors to be taken into account in the long-term planning of dwellings are the customs and requirements as stated by the occupiers of the dwellings on the grounds of their own experience. Although these are subject to change, it would be incorrect to ignore them.

We shall first consider the question of the over-all dwelling space and then that of the various rooms and their mutual relationships.

A series of surveys has led to the conclusion that 56 square metres would be sufficient dwelling space for three persons, 77 sq.m. for four persons and 84 sq.m. for five persons.

Opinions expressed about kitchens in the national discussion on housing and various surveys may be summed up as follows. The majority of the people are satisfied with small working kitchens

("laboratories") of 5-6 sq.m., but interior kitchens without direct light are very unpopular. Kitchens connected with small dining-rooms or "dining corners" are very popular. The area of a dining corner need not be larger than 5-7 sq.m.

In the national discussion on housing, the smallness of the living-rooms was often criticised. Occupiers would like this area in flats for three and four persons to be not less than 18 sq.m. and in flats for five and six persons not less than 20 sq.m.

Opinions concerning bedrooms are formulated with a view to the need for differentiation between parents' and children's bedrooms. For that reason the public agrees to the reducing of their space, as compared with the traditional Central-European conception. All the surveys carried out in 1959-61 suggested that the most convenient areas for bedrooms, both now and in the near future, are as follows : for a bedroom for one child 8 sq.m. (with a minimum of 6-7 sq.m.) ; for a bedroom for two children, 11-12 sq.m. (with a minimum of 9-10 sq.m.) ; and for the parents' bedroom 12-14 sq.m.

Relatively frequent criticism is made of the size and equipment of bathrooms in new flats. The area in dwelling types built in Czechoslovakia recently has been 2.5-3.5 sq.m. This is considered insufficient and as a result of the national discussion on housing it has already been increased in new types to about 4 sq.m. This figure satisfied the requirements of the majority.

The economic quality of a dwelling is of course determined not only by its space standards but also by its design, which depends on the ways of life and the needs of the present and future family. Not very long ago the practice was to make the size of all rooms approximately the same. In experimental constructions built in 1960-61 the sizes were varied and this made it possible to increase the number of rooms. It meant, of course, that some were very small (for instance, miniature bedrooms of 5 sq.m.), an unusual thing in Czechoslovakia. This principle of differentiation in the size of rooms was much talked about at the national discussion of housing and was accepted by the public. New types were designed to meet this change in public opinion, the models of which were shown at the "New Housing" exhibitions. The majority of visitors who had filled in the questionnaires liked them and so these new designs, including kitchens with small dining spaces, will be incorporated in the new types to be built from 1963 onwards.

An analysis of the questionnaires answered at the exhibitions showed also the order in which the Czechoslovak public ranks its requirements in the design of a dwelling. The first requirement is separate children's and parents' bedrooms. Next, meals should not be taken in living-rooms or kitchens but in a special dining

space adjacent to the kitchen. Separate bedrooms should be provided for children of opposite sexes. And there should be a separate bedroom each for husband and wife, i.e. the number of bedrooms should equal the number of persons.

The first requirement represents the minimum and the last the maximum that the public desires in a dwelling. Experts, mainly the pediatricists and the hygienists, do not quite agree with this order of requirements, and maintain that the second most important point is separate bedrooms for children of opposite sexes.

Hygienists, at least in the recent past, have criticised the provision of dining spaces contiguous to kitchens. The conflict of opinion in this matter arises from a clash of the hygienic and the sociological points of view. The desire to have a dining space close to the kitchen is due to the fact that this facilitates social contact between women and the members of the family in the afternoon and evening when employed wives generally do their housework. It leads also to a gradual participation by all the members of the family in domestic work and prevents the social isolation of women in family life. But undoubtedly it has certain hygienic drawbacks. As existing space standards do not permit simultaneous compliance with the requirement of separate bedrooms for children of opposite sex and that of a special dining space, it has been decided to design some of the new types with more bedrooms, and the rest with dining spaces but only two bedrooms for four-member families.

Present-day and future house building in the Czechoslovak Socialist Republic, which in the next few decades is going to create new towns and estates, is not exclusively utilitarian in character. Its targets are also social and humanitarian. Endeavours are made to create an environment that facilitates the social activities of the occupiers, assists them in getting rid of their anonymity and makes even town dwellers feel that the place they live in is their home. In what ways, then, can the arrangement of free space, buildings and communications exert an influence on such intricate things as human relationships? The answer has been given by the sociology of housing, which has achieved remarkable results in recent years. It has been clearly proved that the inter-relationships between the occupiers are influenced by the way in which their houses are grouped, the fact that they live in houses of different sizes and kinds, the location of playgrounds and a lot of other factors which seem to be exclusively utilitarian and technical in character: such factors help either to isolate or to unite them, to make them good or bad neighbours. It has to be admitted, however, that these discoveries have not so far resulted, either in Czecho-

slovakia or elsewhere in the world, in a definite statement of the sociologically optimal pattern for residential estates.

Certain principles, however, have been generally adopted. A necessary condition for the development of social activity based on the local community is a hierarchical organisation of the residential zone. The smallest unit of this organisation is the residential unit of between 800 and 2,000 inhabitants. The middle unit is the neighbourhood group, the size of which should be not less than 3,000 and preferably 4,500 to 5,000 inhabitants. Larger than the neighbourhood group is the community group, the size of which may of course vary according to local conditions.

Another principle to be observed in the creation of housing estates, especially neighbourhood groups, is the ensurance of quiet surroundings, which is often secured by prohibiting traffic in the residential zone. Attention must also be paid, however, to the need for easy access to schools and other facilities of the neighbourhood.

The determining factor in the neighbourhood group in Czechoslovak town-planning theory is the provision of facilities for the first nine years of the children's schooling.

The group also has all the other basic facilities and services needed every day: a shop stocking essential foodstuffs and most of the usual factory and drugstore products; a restaurant with self-service; club-rooms; a lecture hall; a library (the social centre); collecting stations for laundry, dry cleaning and dyeing, for shoe and leather goods repairs and for the mending of stockings; a universal workshop for the repair of household appliances; a hairdressing and barber shop; tailor's shop, etc.

Sociologically important is the functional organisation of space to accord with the characteristic age groups of the population.

The inhabitants must have quiet surroundings: this does not mean, however, that they should be isolated. Sociological research has, on the whole, confirmed the theory that the greatest enemy of spontaneous human sociability is excessive spatial isolation as much as lack of privacy.

New relationships among the members of families and the differing interests of husband, wife and children make new psychological demands on dwellings, and have led to the demand that at least each adult person or adolescent over 15 years of age ought to have his or her own room—a kind of bed-sitting room, where one could study, listen-in to the wireless or receive friends. Although it is not possible to satisfy this demand on a nation-wide scale immediately, it is taken into account in the long-term planning of improved housing standards.

DEVELOPMENT AND PROSPECTS OF HOUSING STANDARDS

Three stages are envisaged in the long-term development of housing in Czechoslovakia. In the first stage (up to 1970) the standards to be reached are (1) for each household to have its own dwelling and (2) in principle, for one-room flats with a kitchen to be occupied by two persons, two-room flats with a kitchen by three to four persons and three-room flats with a kitchen by five or six persons. The second stage (up to 1980) will probably raise the standards so that each adult person may have his or her own room and two children their own bed-sitting room. In the third stage (after 1980) it will be possible to improve matters so that by about 1990 no further increase in the number of rooms with relation to the number of the members of the family will be needed.

What is the outlook in the planning and designing of new dwellings which in a relatively near future will have to satisfy high standards? These dwellings are to complement the old housing-stock and they are mostly intended for young families with children.

The standard of a dwelling depends on several factors: area, structure to suit a given number of persons, variety of kind to meet the needs of different types of households, and equipment. In addition, the standard of equipment of the buildings and the quality of the surroundings are taken into consideration. The living space (i.e., the space occupied by the living-room and bedrooms) of an average dwelling built in recent years was 36-38 sq.m. The average number of rooms per dwelling was 2.13. In future buildings of new types based on suggestions made at the national discussion of housing and the 1961 exhibitions, the living space in the average flat will be 40 sq.m. and the over-all space 58 sq.m. In 1961-62 the proportion of two- and three-room flats increased to 35 per cent.—almost double the figure for 1960. The proportion with three and more rooms (two bedrooms and a living-room) is to be increased to 60 per cent.

Dwellings to be built after 1963 will be in the proportion of 45 per cent. for four persons, 20 per cent. for three persons, 12 per cent. for two persons, 11 per cent. for five persons, 8 per cent. for one person and 4 per cent. for six and more persons.

In the new series of types, which include several kinds of flats, kitchen areas without dining-space range from 4.5 to 7.5 sq.m. and living-room areas from 15 to 30 sq.m. Bedroom areas are: for one child, 6-9 sq.m. and for parents, 10-16 sq.m. The over-all areas of the flats on view at the exhibition were: for three persons, 54 sq.m.; for four persons, 65-67 sq.m.; for five or six persons, 81 and 87.5 sq.m.

In principle, one living-room should not be slept in. For example, in a flat for four persons there are either one living-room, one small dining space contiguous to the kitchen and two bedrooms or one living-room and three bedrooms. In the bathroom there is space for a washing machine, linen basket, a baby's bath, etc. These flats will have loggias in 60 cases out of 100, and will be provided with a cool cupboard (or one for non-perishable food), a cupboard for cleaning utensils, and built-in wardrobes or recesses for storing clothes (0.9 cu.m. per person). The houses are to have sufficient space for the parking of prams, mail-boxes, boxes for delivered foodstuffs, a storage room, a space for a sink, installation for central heating and (in dwellings with more than four floors) a lift.

The Research Institute for Building and Architecture is working on the preparation of new types for the period after 1970. The first stage of the preparatory work is based on the assumption that after that date one of two standards will be most suitable. The area of an average flat would be 62 or 66 sq.m. This means that the over-all area of a flat designed for four or five persons would, under the higher standard, be 78 sq.m. The living area of 58 sq.m. would be divided into a living-room of 16 sq.m. and a dining space, connecting it with the kitchen, of 6 sq.m. The parents' bedroom would measure 14 sq.m., a bedroom for two children about 12 sq.m. and a bedroom for one child, 10 sq.m. This standard seems very high—further research will be needed to decide whether or not to increase the number of bedrooms by one, so that both the father and the mother have a separate bedroom.

Whether such standards are the best possible has yet to be decided, for the problem of cleaning and maintenance increases with the increase in area. International opinion, shared by Soviet as well as French experts, considers 15 sq.m. per person to be the optimal space.

After the claims on space have been saturated, the improvement of standards will be of a technical rather than a spatial character and concern the equipment of flats—chiefly modern forms of heating, ventilation, air-conditioning, storage, equipment of kitchens, bathrooms, etc.

The stock of housing will also be improved by a larger assortment of flats. It is proposed to design different types of dwellings for childless households of one or two persons, varied according to the age of the occupiers; for families with children, varied according to the number of children; and for heterogeneous households including one or more persons besides the nuclear family. The adaptation of these three types of dwelling to the different numbers of persons catered for makes approximately 15 basic patterns, each of which may of course be differently designed.