# Morphology of Population Growth and Population Policy

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### 1 Introduction

It may sound platitudinous to say that over a sufficiently large time scale a nation's overall population tends to grow. It is also obvious that many factors which can be broadly classified under the heads of objective and subjective contribute to this growth. There are always certain factors in man's social environment which he finds as given and pre-existing at any given moment of time and at any stage of social evolution. These factors can be termed as objective with relation to that particular stage of growth. Under these conditions the forms which man's social and individual consciousness assumes such as opinions, concepts and intellectual approach to variegated problems of social life in the broadest sense of the term (i. e. inclusive of politicoeconomic stages of existence) can be looked upon as subjective factors with respect to that particular stage of social evolution. It is to be stressed here that this division of social factors into objective and subjective is by no means water-tight, and that social development takes places precisely because of a constant interaction between these factors e. g. man's action is capable of modifying and bringing about transformations in his social environment as well as in his conceptual frame work, in the frame of reference of his pre-determined goals and objectives. But how, and in what forms this action becomes, or should become oriented towards these goals depends, by and large, upon the objective component of his social environment such as available resources, both

Luman and material, at any given moment of time and at the stage of growth to which social development has attained at that moment of time. Also significant in this connection are the objective factors of cost and output relationship concommitant with socio-economic and environmental constraints that must needs be precisely calculated in order to put into effective operation the resources at hand, and to create new resources in consonance with the various stages of any undertaking as they are gradually and continuously unfolded.

From the above general observations it is fairly obvious that any significant factor of social growth interacts upon all the other factors, in some cases directly, and over a short span of time where the relationship is very close, and in other cases indirectly, or in other words, through the media of other intermediate factors and over a comparatively long time-range. In some cases the impact of such interaction may be profound. The interaction is concretised and becomes perceptible in the form of actual and potential consequences which in many cases can be measured fairly accurately in terms of something or other depending upon what aspects of social life we have chosen to bring under consideration. These consequences give rise to other factors with their own implications, and then new sets of interaction processes are brought into play, and so on and so forth in a continuous manner.

### 2 The human fertility rate

Bascially, high human fertility rate is characteristic of a backward socio-economic formation. This is, in the first place, a compensation for the high mortality rate prevalent in such a community. The predominantly agricultural base of such economies demands a continuous supply of agricultural work force which comprises child force to a good measure made practicable by primitive modes of production where little need of technological skills is called for. Also, part of the aged sections of the population look up to the young work people for their sustenance. This relatively primitive "dependence relation" also contributes to the high birth rate in backward communities. As such traditions have been handed down from generations, they assume the form of 'set standards'. All these factors generate a social inertial force which resists change in any other direction. As the 5th Plan rightly singles out, tradition, cultural standards and economic level of a community are the most important determinant variables of population growth. Mr. Kunii of JOICFP holds, in a booklet, that high fertility rate is "a natural means of adaptation" in a backward agricultural society. In an industrialised society, however, the situation is completely reversed. Any society, having attained to a definite stage of evolution generates specific pressures. The pressures that characterise an industrialised society make it incumbent upon the

members of such a society to 'rationalise' the way of life they are leading. Any addition to the number of chilhren they already posses is equated with additional and unwarranted burden—a retogressive phenomenon in terms of comforts. There is hardly any "dependance relation" to worry about and the mortality rate is low. A large work force ceases to be rational in a mechanised community. Hence low fertility, with equal cogency, is a natural means of adaptation in an industrialised community. Two diametrically opposite specimens of pressure are thus brought into being in the agricultural and the industrialised communities as the above process of adaptation courses along viz.— in the former the pressure of high fertility and in the latter, that of low fertility. In both cases, of course, the element of rationalisation is embedded in one form or another corresponding to the socio-economic structures. The fertility-control motivational programme in an under-developed community, therefore, inevitably involves a comprehensive, all-embracing campaign to effect a process of remoulding this 'rationalisation' to keep pace with the changing circumstances and so with the altered aspects of pressures.

In purely demographic terms the population growth rate increases over a span of time if birth rate increases or remains constant, but death rate keeps falling (the respective rates of birth and death are defined demographically). This widens the gap between the curves of birth rate and death rate; the gap at any point of time representing the rate of population growth, there occurs a time-lag, which is the period during which the population keeps growing, i.e. birth rate does not decrease in the same ratio as death rate. It is a remarkably undeniable circumstance that most of the developed countries of the world lie within the narrow strip of the space defined by the above curves, whereas countries of the under-developed region of the world find themselves in the ever-broadening strips of same the space.

It seems to follow that there must be a categorical relationship between development in the socio-economic sense and population growth rate. This is an empirical fact of observation. It does not, however, follow that such development was consequent upon the attainment of a falling population growth rate, although it stands to reason that in most cases, the latter must have provided a great fillip and momentum to the acceleration of economic growth and of those factors of social life which are indissolubly bound up with such growth. Some even argue that it is the expansion of economic growth and welfare generating highly develop socio-cultural structure which has spontaneously resulted in the slowing down of population growth rate without any deliberate and elaborate attempt on the part of the Government to bring about such deceleration. These people, amongst them some economists, point out that it is a fallacy to

equate economic growth with economic welfare, for even with a constant economic growth, the national income and resources can be so re-organised and mobilised that economic welfare results. This circumstance will generate forces which, by virtue of their very nature eliminate mal-distribution of population and slow down population growth rate.

Even assuming that such a theory contains part of the truth it can not be denied that population pressure has become a very real and tangible phenomenon the effects of which can be empirically demonstrated with regard both to direct and indirect, short-term and long-term repercussions on the process of social development. Population pressure has special relevance, at present to the countries of the under-developed regions of the world which cannot rely on generalisations from the past historical experiences of the developed countries where high economic growth was achieved and the side-consequence of a falling population growth rate was observed. We, who inhabit the under-developed world are, as it were, in a different frame of reference.

## 3. Fertility and Resources

Generally speaking, by population pressure we understand an ever-increasing demand upon a nations resources in terms of the tasks of meeting the urgent needs of various nature of an ever-expanding population, even if we are content to accept a low level of living standards, or of consumption. In under-developed countries this pressure becomes progressively acute on account of the short supply of resources and a low rate of capital formation (this in part may depend, even though obliquely, upon the rate of population growth itself) which fouls up the process of utilisation of existing resources and bringing into being of new ones. An economic circle in its simplest forms can be visualised thus: high population growth rate leads to higher rate of consumption, or eating up of resources which in turn leads to lower rate of savings, and therefore of investments. This directly results in lower rates of national income and consequently, reduced potential for capital formation along with all its insidious implications for a nation trying its mighty hard to pool its available resources for all-round national development.

If economic growth rate can only just keep pace with the population growth rate the growth rate of per capita income will obviously be nil. In Nepal at present, according to NPC, economic growth rate is not much ahead of population growth rate. If per capita income in 1970 was some where around Rs 800 it has grown to only Rs 1,172 in 1978; moreover, the real purchase value of this amount in comparison to that of 1970 would be more or less the same with respect to necessary articles of subsistence if we assume about 46% rise in the price of such commodities.

over the past decade. In consequence of the basic economic staganancy concommitant with a rising population the rate of poverty has assumed an ever upward trend, and it is nothing surprising to have to learn that according to NPC estimate 40:26% of the agriculture-based population now live under the absolute line of poverty which is drawn at a miserable Rs 60 a month—the assumed lowest line of subsistence. As inflation and prices mount this line will have to be shoved up, and then more people will fall below it. Their share in national consumption, and therefore in GDP, dismally low as it is, will keep sloping ever downwards. It is evident that for a developing nation which needs to take care of the limited resources at its disposal and utilize them in a planned and frugal manner, not being able to afford waste, an unwanted growth of population sucking up resources can only lead to speedy slowing down of the rate of economic and social progress.

The emergance of another problem consequent upon the uncheked rate of population growth in a predominantly agricultural country like Nepal becomes manifest over a period of time. About 34 and half percent of the total land area lies in the high altitude mountainous regions. Also only 16:5% of the total land area is under cultivation. To this is to be added the fact that the share of the mountainous regions taken together in the agricultural production actually carried out is only about 33% of the total whereas about 67% of the total population live in this area. The one natural outcome of this geo-physical constraint is witnessed in the process of smoothig out of the high population pressure per acre of agricultural land in this area by means of a continuous migratory population flow down into the Tarai where the pressure per acre of cultivable land is relatively low, at an estimated rate of somewhere around 37 thousand people every year. As population growth curve slopes upward with an unabated inclination this will, in particular, bring about a comparatively big swell in the size of hill population and the rate of internal migration is bound to grow faster. As the industrial sector of the economy is only in embryonic stage the pressure on per acre of land in the Tarai is likely to evidence phenomenal increases over time, a fixed portion of land having to feed and sustain more and more people. One obvious result of this will be gradual diminition of marginal productivity of agricultural labour as agriculture population swells; this is the subjective aspect of productivity. There is also the objective aspect, for as such populace will tend to continue to carry on with the traditional methods of agricultural production coupled with increasing land fragmentation the productivity of land per acre will also show a conrinuously downward trend. Land fertility is subjected to ever increasing pressure. Mechanisation of the methods of agricultural production may not necessarily prove to be the panacea as many people might think it will. Agricultural

mechanisation under the given conditions will release a great volume of agricultural labour which cannot be reasonably absorbed elsewhere in the economy, for there is hardly an industrial sector worth speaking about. Also it has been the experience of many industrial countries, especially in central and eastern Europe that agricultural mehanisation notwithstanding, the productivity of land per acre has not increased sufficiently to warrant sanguine conclusions. The lagging behind of agricultural production has therefore assumed a chronic form. More important than mechanisation may be chemical treatment of land with fertilizers, pesticides, seeds of developed varieties, livestock farming and the like. In Nepal this process of chemical treatment of land neither has had a long history, nor has it found wide application:—there are socio-economic and psychological constraints such as inefficient supply and distribution system, low financial resources of the farmers, lack of adequate technical know-how, as also a psychological reluctance to break away from the age old concepts ingrained in the feudalistic system. As a result land fertility is put to augmented pressure and a vicious circle sets in.

An inevitable outcome of population growth is the growth of population density per spuare km. If it was 64:7 in 1961 it soared up to 79:5 in 1971 (a growth by more than 20%), 88:4 in 1976 (more than 10% rise over 1971). With this rate it is projected to be 110:4 in 1986 (a continuous rise of much above 20% over a decade). The density per square km. of cultivable land, however, increased more than 22:7% in 1971 over 1961; in 1976 this density was 421:10 per square km.—an increase of more than 11% over 1971. In 1986 it is projected to be 725:7, an increase of nearly 25% over 1976.

As the 5th Plan points out, from the point of view of density of population per square km. in the land under cultivation the high altitude and hilly regions are now bearing a far greater brunt of population pressure. Even in the plains this density is greater than that in Burma or Pakistan, and about equals that in India. It has also been pointed out that on the land under cultivation population pressure in terms of density per square km. ranges over 1174 in high-altitude regions, 1000 in hilly regions and 336 in the Tarai. This pressure in the hilly regions turns out to be more than three times that in the Tarai. The 5th Plan has warned that if the population growth continues as it is, Nepal may have to import foodgrains in the next ten years instead of exporting it.

One must remember that the land at present under agricultural production covers 23,26,000 hectares which comprises only 16:5% of the total land surface of 1,45,30,500 hectares. As population growth continues in the food-grain (especially rice) producing areas of the Tarai

with an unabated rate consumption grows and marginal productivity of labour together with land fertility diminishes. The saving rate falls as is evident in the last few years as compared to 1975-76. In 1977-78 land under rice cultivation increased by 2%, but production of rice continues to fall short of what it was in 1975/76. The food-grain consumption pattern of the hilly regions has a parasitic character on account of grave imbalance between production and consumption consequent upon the fast growing population aggravated by geo-physical constraints upon which little human control can be established. Self-sufficiency in agricultural production remains as ephemeral a dream, as ever so far as the hilly regions are concerned. Constraints of various nature, although to a lesser degree obtain also in the comparatively high productive areas of the plains, for in absence of sophisticated methods of irrigation etc. Agricultural production has to depend upon fortuitous factors such as the climatic ones. Irrigation obtains only for 10% of the land under cultivation. Nor is this the only major impediment. Some, at any rate, of the constraints are removable; the process, however, has to draw upon the nation's investments, thus cutting dawn on the process of faster rate of industrialisation capable of redundant labour-itself a byproduct of unchecked population growth. reason that even if the investments carried out in planned and scientific manner may prove capable of generating increasing returns over a number of years the performance is more than likely to be offset by an ever faster swell in population.

According to a recent Asian Development Bank report a top official of ADB has claimed that in the period of 15 years from 1960 to 1975 the agricultural output of paddy in Asian countries has grown by 43% while the overall growth of population in this self-same region has registered 42%. Thus agriculture production of the most important diet component in this part of the world is barely able to keep pace with the growing population. This has been supposed to be due to "performance gap" in this region, this gap itself being a function of several variables and certain constant factors such as given socio-economic structure and institutional organisations necessarily erected upon them together with geo-physical constraints of specific types variously characterising different regions of this part of the globe This gap may partly be accounted for by the enormous population growth rates themselves which, trigger off as they do pressures of socio-economic nature, form one of the determinant variables. Hence one immediate task towards amelioration or easing up of such pressures is to strive with all intensity to lower the population growth rate and keep it at a constant optimum level to be determined by the specific socio-economic and other relevant factors obtaining, or in the process of formation in the various countries of the under-developed world. The other immediate task, of course, is

to step up agricultural activity by various nationally suitable means even inclusive of transformation of the given socio-economic formations and institutions if they have proved to be unwarranted constraints.

# 4 On Population Policies

In this connection it will not be out of place to note that the world population conference convened in Bucharest in 1974, pointing up the third world's contemporary approach to the population probelm ended up on the significant note that development is the best contraceptive.

A notable feature of the present-day population policy in the under-developed world appears to be the growing awareness of the need to lay stress on the individual's freedom of choice to decide his own family size, the government's role being limited to dissemination of relevant knowledge and supply of adequate means. A vigorously active role on the government's part may give rise to unsavoury consequences as evidenced, for instance, in India in the recent past. Another trend in the present-day population policy has been manifesting itself in the form of increasing emphasis on introducing family planning, above all, as a health measure. An important lesson learned from past experiences has been that for a population policy to succeed over-emphasis on macro-economic aspects of population growth must be eschewed, as such emphasis may only serve to render the prgramme eneffectual, being of no motivational pvalue to the community at large. Also, it is hoped that in the course of our discussion the fact has emerged fairly well that a predominantly ideological approach via family planning is not enough inasmuch as there exist objective factors or "determinants of fertility" which are varied and which must be taken into account in formulating a viable population policy.

All the above goes to show that formulation of an effective population policy cannot be a simple matter; nor can it be made to conform to a process of simple logic. In many countries of the under-developed world the process of such formulations has been undergoing the vicissitudes of trial and error. No one can presume to dish up prescriptions of universal applications, for what is relevant in the context of the conditions obtaining in one country may prove to be wholly devoid of content in the case of another.

It is instructive to go over how the 5th Plan views the population pressure that has been building up and what measures it prescribes, in most general terms, in the direction of gradual easing up of this pressure. In Nepal most females enter child-bearing age too early as marriages already occur in the age-group 15-24 years. In 1975 the number of fertile women stood at 27,00,000; by 1979 it is estimated to have shot up to 30,00,000. The rate of increase of

fertile females works out on a simple average, to be 65,000 per year. On account of the fact that tradition, cultural standards and economic lever are the most significant determining variables of population growth any comprehensive programme of birth rate reduction or fertility control is bound to be a complex process having very deep ramifications into a nations's way of life. The "rationalisation process" earlier spoken of can be remoulded only through a massive community motivational programme for which the following general steps are pointed out to be the most important:—

- (1) Adequate information and education of populace.
- (2) Improvement in public health facilities. This will help especially in bringing down infant mortality rate which will spur the community on towards psychological preparedness for the implementation of a comprehensive fertility control programme. This is obviously significant in a country like Nepal which belongs to the highest infant mortality rate nation—group.
- (3) Rendering of adequate services through development in family planning services and programmes.
- (4) Effective and balanced implementation of development projects oriented towards economic upliftment of people.
- (5) Social reforms and greater and increasing involvement of women in economic and developmental activities.

In view of what has been said population policy is bound to be a long-term policy, for in spite of a good rate of progress in controlling birth rate its effect on population growth rate takes at least 15 years to be perceptibly felt.

The task must, however, be undertaken, for population growth has deleterious effects also upon economic planning. Effective utilisation of savings and investments to augment national production is grievously frustrated by unwanted population growth.

Death rate has been falling due to preventive medicines, new developments in medical treatment and in scientific technology. Also, these facilities have been reaching ever greater number of people with the expansion of basic health infrastructure. Better standards of living also bring death rate down. It follows, therefore, that unwanted growth of population can be halted only by timely concentration decelerating birth rate.

It should be noted that there is a quirk to the population problem in Nepal. It exists because endeavours to diminish birth rate and therefore population growth are grossly vitiated by uncheked immigration from outside the country.

Taking into account all the relevant factors, the salient features of the present-day population policy can be summed up as follows:—

# (1) To decrease birth rate through

- (a) indirect but far-reaching programmes of economic, social, cultural and education reforms and development.
- (b) direct programmes such as maternal and child health and family planning.
- (2) To control unchecked immigration from abroad.
- (3) To bring under planned control internal migration from the hills to the Tarai, and from country to town.
- (4) To effect re-distribution of population in areas rich with economic resources in order to a helieve their maximum utilisation...and therefore to increase population density in agricultural land in the Tarai, especially in Western Tarai, so that high density pressure in the mountainous regions is provided with an outlet, and density is more evenly distributed.
- (5) In those areas that are important from the view point of balanced regional development, it is necessary to develop small towns, and so urbanisation in selected areas of those regions should be undertaken.

In the present context of Nepal, a far-sighted population policy must reflect the problems of uneven distribution of population which itself leads to creation of pockets of pressure as the process of internal migration is allowed to run its natural course. The resultant phenomenon, mal-distribution of population occurs because:

there exist focal points of population pressure in the country, i.e. this pressure with respect to resources gains concentration in certain areas; and as population swell, the number of these focal points becomes greater,

as limited resources are continually eaten up, eventually leading to denudation of resources, a continuous stream of exodus to relatively less pressure-sticken areas commences.

On account of the uniformly high rate of population growth in such areas too the population burden thus being continuously added to, sets in motion a process of springing up of focal points of pressure in the hitherto less pressure-afflicted areas.

The process of exodus and re-settlement is, moreover, a selective process, so that comparatively resource-rich areas are brought under more and more pressure.

The above consequence follows because of the uneven process of development in various regions giving rise to Regional Imbalance. Poulation tends to become concentrated in comparatively developed areas where productivity, opportunity for employment, urban facilities and so on are greater. The above process as it is manifested in practice becomes clear if we remember that from the view point of regional population densities the Tarai regions of the eastern and middle zones are worse hit than their counterparts in the western zones and suffer from a high pressure on account of a greater number of developmental projects having been concentrated in these areas during the past plan periods, so that greater accumulation of resources, urbanisation, and various employment facilities resulted there. Such public health projects as Malaria eradication in these erstwhile malaria-infested areas have also contributed to ever-increasing migration to and population concentration in these areas. As the 5th Plan points out, over the past decade the average annual growth of population in these areas comes to 4%, or even to 6 to 7% in some places. Such high population growth rates cannot simply be attributed to a bionatural process. They rather point in the direction of a mal-distribution of population together with unbridled immigration from neighbouring countries as conspicuously evidenced in 1970-71, and in continuous trickles in the normal course of events.

This immigration also being selective more and heavier focal points of population pressure are created in these areas. All the above processes usher in a vicious circle, for they contribute to more uneven development and greater regional imbalance.

Apart from geo-physical reasons, the pattern of settlement therefore also depends upon the process of developmental activities being concentrated in one region or another.

As the pattern of settlement is permitted to run its natural course certain areas remain denuded of human resources, and consequently tapping of material resources in these areas lags far behind. Concentration of population pressure in some regions becomes more acute, and the entire process generates retrogressive factors in the national developmental course as a whole.

The above process also tends to create problems of socio-cultural nature; as the heterogeneous components of population come into contact with one another with widely divergent socio-cultural frames of reference they cannot be expected to mix well and conflicts of various nature are likely to arise.

The process of urbanisation in a balanced manner is not yet in evidence. In 1971 the urban population was 4% of the total. But the 5th Plan itself regards a growth of 24% in the urban population over the decade 1961-71 as too conservative an estimate. In some urban areas the population growth over the decade has been as much as around 50%. In Pokhara it has exceeded 280%! Although the number of town Panchayat now stands at 23, an overwhelming increase of more than 100% over 1971, this urbanisation has again tended to be determined by physicoeconomic factors and facilities concurrent with them instead of being based on a planned process aimed at generating such factors and facilities in other regions of the country where there is no urbanisation to speak of. There is no denying that to a certain extent at any rate geo-physical constraints do come into play here. But other and more significant constraints are removable. The concentration of urbanisation process to limited regions also leads to factors which will generate population pressure, with all its implications, in the urban areas. On the other hand the growth of urban population has not take up place as it should as a natural outcome of the growth of industrial and job-generating processes in the urban areas as a whole, and indicates only the growing rate of poverty in the rural areas itself in part an outcome of the growing overall population pressure, given the present semi-feudal characteristics of the socio-economic structure. As the gulf between Town and Country widens this problem is bound to assume moreformidable dimensions.

Finally, on account of the complexity of the social framework no step towards a fertility control programme is going to be a simple matter, for it encompasses the whole fabric of society. This has been the intent of this article to show. As the scientist Carl Sagan said, in a different context, any significant change runs through the whole of society. We cannot pick up fragments of society and limit changes to them, for all social factors are inter-related.

It is the prime task of an efficient management of any undertaking to grasp the above process in its entirety, and in its various ramifications in order to adequately formulate a plan of action oriented towards minimising undesirable consequences and maximising the desirable ones. They can be respectively termed the negative aspects and the positive aspects of plan formulation. Both types of consequences depend upon the growth or otherwise of the relevant factors. The

management at the top, consequently has, above all, an intellectual task to perform. When the stage is reached where the formulated concepts are to be put into practical operation the questions of Policy, Resources, Methodology and Control at various operational levels have to be adequately answered, partly, in order to eliminate as best one can the untoward effects consequent upon a number of unforeseen and uncalculated adverse factors coming into play as an undertaking proceeds, and tending to nullify the pre-set objectives. At the incipient stage of any undertaking or project this is unlikely to be anything more than a tentative process. It is on account of this phenomenon that concepts of Project evaluation and Project control have now been developed to a highly sophisticated level.

# Selected Bibliography

 Philosophical Background for Humanistic Family Planning. Chojiro Kunii JOCCFP,1979.

2. Fifth Plan.

National Planning Commission 1975.

3. Population in Industrialization

Michael Drake, Methuen & Co. Ltd. Reprinted 1973.

4. Population Policies and Economic Development

World Bank Staff Report, 1974, The Johns Hopkins University Press.

5. World Population-The view ahead,

International Development Research Centre. Series No. 1, The Bureau of Business Research Indiana University, 1968

 Changing Approaches to Population Problems,

Margaret Wolfson

Development Centre of the Organisation for

Economic Cooperation and Development in Cooperation with World Bank. Paris, 1978.

7. Further Sociological Contribution to Family Planning Research

Editor: Donald J. Bogue Community and Family Center, University of Chicago, 1970

8.	Population, Environment and People	24 Original essays, edited by Noel Hinrichs, McGraw-Hill Book Company, 1971.
9.	Motivation—a study of action	Birch and Veroff Brooks/Cole Publishing Co.; 1966.
10.	The myth of Population Control	Mahmood Mamdani Monthly Review Press; 1973.
11.	Population, Environment and Social Organisation Current issues in Human Ecology	Michael Micklin The Dryden Press; 1973.
12.	The growth and control of world population	W. D. Borrie Weidenfeld and Nicolson; 1970.
13.	Population and its Problems,	Edited by H. B. Parry Clarendon Press; Oxford; 1974.
14.	Population Studies Selected Essays and Research	Edited by Kenneth C. W. Kammeyer Rand Monally & Co., Chicago; 1971
	The Growth and Structure of Human Population (A mathematical investigation)	Ansley J. Coale, The Office of Population Research, Princeton University; 1972.
16.	Rapid Population Growth (Consequences and Policy Implications)	Research Papers, Vol. I and Vol. II The Johns Hopkins Press; 1971.
17.	Population and Social Change	Edited by D.V. Glass and Roger Rebelle.
18.	The Political Economy of Growth.	Paul A. Baran
19.	The Cosmic Connection.	Modern Readers' Paperbacks, London;1957.  Carl Sagan

Coronet Books, Hodder Paperbacks Limited; 1975.