



" LAND UTILIZATION SURVEY
AS A BASIS FOR GEOGRAPHICAL TYPOLOGY OF AGRICULTURE"

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Land Utilization Survey as a Basis for Geographical Typology of Agriculture

As has been the experience in other systematic disciplines of the social side of geography, contemporary agricultural geography has developed from studies formerly part of economic and human geography. The following basic directions can be distinguished in its development¹.

The first, connected with what is termed commercial geography, has primarily provided information on the appearance and distribution, and also the amount of production of certain raw materials on the earth. These include the agricultural, with emphasis on those which have been or might have been the object of international commerce. Emphasis has been placed more on the results of production than on the conditions under which it developed. The purpose was more to explain where the given raw material might be bought at the lowest price, than in what way it was produced. The physical, social and economic conditions under which the agriculture producing these raw materials developed as well as how agriculture utilized the advantages and overcame the disadvantages of its geographical environment, were not a subject of direct interest.

This approach has been characteristic of nearly all classical textbooks of commercial and later economic geography. Many studies have been published treating the geography of agriculture in this way.

Besides the exposition of what is called general geography some early textbooks of economic geography also contained a regional part dealing with problems of production and the exchange of products between certain countries. The latter approach was sometimes the only one used and in a number of countries it dominated economic geography. In studies on the geography of agriculture this direction was made, to a lesser or greater extent, by a detailed description of the agriculture in the region in question. Many studies of this kind were also made by agricultural economists. If the individual elements of the agricultural economy are not treated as isolated from each other, this method yields important results.

Although they differ in their methods, there is a great similarity in character in the works which treat the economy as a whole, or more

¹ Cf. J. Kostrowicki: *Trends in the Development of Agricultural Geography and its Tasks in Poland*. „Przegląd Geograficzny” 29 (1957) No. 1, pp. 3—19 (in Polish, English summary).

often only agriculture, in frame of physical, mainly climatic, units. In such works man and his economy are often treated as subordinate to their physical conditions.

In contradistinction to these trends which originated in economic geography, the third direction which in France is called *géographie agraire* (as opposed to *géographie agricole*) is derived from human geography. This trend is less informative, being more qualitative than quantitative, more genetic than descriptive in character. Although various authors interpret *géographie agraire* in different ways, most of the studies deal more with the effects of human activities as visible in the landscape, than with the economy itself, looking for the genesis of the existing forms (shape of fields and villages, enclosures, fences etc.).

In the Thirties of the present century, works more problematic and synthetic in character (derived from all the three trends discussed above) began to appear, mainly in France and the USA. They presented the geography of agriculture as the geography of systems or types of farming. I would suggest that we call this trend "typological". In recent years a number of works of this kind have also been published in other countries such as Germany and the USSR².

The most interesting papers submitted to the section on the geography of agriculture of the 18th International Geographical Congress³

² Cf. primarily a long series of articles on agricultural regions of the world published in *Economic Geography*, in the years 1925—1943 and prepared by: O. E. Baker, O. Jonasson, C. F. Jones, G. Taylor, S. Van Valkenburg, H. K. Schantz; and also the following studies: *A Classification of the Agricultural Regions of Europe and North America on Uniform Statistical Data*. By R. Hartshorne, S. N. Dicken. "Annals of the Association of American Geographers" 25(1935), pp. 99—120; *Major Agricultural Regions of the Earth*. By D. S. Whittlesey. *Annals...* 26(1936), pp. 199—240.

Numerous studies by American and British geographers representing this trend have been mentioned in the article of J. Kostrowicki entitled: *Remarks on the Geography of Agriculture in English-Speaking Countries*. „Przegląd Geograficzny” 29(1957), No. 1, pp. 47—65 (in Polish, English summary).

Among French studies the work by D. Faucher: *Géographie agraire. Types de cultures*. Paris 1949 — should be mentioned first. Then: P. George: *La campagne: Le fait rural à travers le monde*. Paris 1956; and also numerous studies of partial character dealing with particular types (systems) or regions.

Among German publications, the works of L. Waibel are representative of the typological trend. As regards the Soviet writers, the subject is discussed by J. G. Saoushkeene in: *Geograficheskiye Ocherki Prirody i selskokhozyaystviennoy dieyatelnosti naseleniya v rozlichnykh rayonakh Sovetskogo Soyuza*. Moskva 1947 (in Russian).

This trend is more or less dealt with in the following textbooks of economic geography:

C. F. Jones, G. G. Darkenwald: *Economic Geography*. New York 1941 and further editions.

D. H. Davis: *The Earth and Man. A Human Geography*. New York 1942.

N. J. G. Pounds: *An Introduction to Economic Geography*. London 1952.

³ e.g. H. Boesch, M. Brunhofer: *The Decline of the Drei-Zelgen System in Northeastern Switzerland*.

D. Gribaudi, P. L. Ghisleni: *La distribution géographique des types d'aménagement des surfaces cultivées en Italie*.

O. Ribeiro: *Utilisation du sol, systèmes agraires et habitat: quelques remarques comparatives*.

J. Tricart: *Types de systèmes agricoles et niveaux de vie en Afrique Occidentale Française*.

belong to this trend. Agricultural economists and agriculturalists⁴ have also contributed much in this respect. Up to the present time, however, we still observe studies carried on with different methods based on sample investigations, frequently non-comparative, due to the fact that various types and systems are differently understood. It seems that the geography of agriculture as a separate geographical discipline, is still in the stage of describing and distinguishing various types, and it is only after this period is over that the systematization and scientific classification of these types, based on uniform criteria, will come. The first syntheses of the geographical typology of agriculture, which have already appeared, although they are not based on uniform objective criteria, seem to promise this further period of development. The process may be hastened and the uniform objective criteria for division established when we take advantage of land use surveys, provided they are properly set up.

Apart from the above trends in studies, in the Thirties of this century, research also began to develop on land utilization which, although closely connected with the geography of agriculture, surpassed it in its scope. The greatest contribution has been made by L. D. Stamp who guided the work on the land utilization survey of Great Britain⁵. To him, too, mainly, belongs the credit for the creation and direction of the work of the Commission on Land Utilization of the IGU, which has made research on land utilization popular all over the globe⁶. Numerous maps and studies of various approaches, scales and scopes have been elaborated. Thanks to the Commission's activity, differences in method are not significant but the scale of the studies and their depth continue to differ. Together with maps and investigations which distinguish only the main uses, there is more and more frequent research in order to analyse the technical, economic and even social aspects of agriculture and to differentiate its various systems and types⁷. The first approach is less appreciated nowadays since — as is commonly stressed — similar

O. Tulippe: *Une révolution agraire au milieu tropicale: les paysannats indigènes au Congo Belge*.

J. Vila Valenti: *Un concept complexe: le système de culture*.

Cf. Abstracts of Papers. XVIIIth International Geographical Congress. Rio de Janeiro 1956.

⁴ Compare for example the following studies:

E. Laur: *Einführung in die Wirtschaftslehre des Landbaues*. Berlin 1920.

A. Chevalier: *Essai d'une classification biogéographique des principaux systèmes de cultures pratiqués sur la surface du globe*. *Revue Int. Renseignement Agricole* 1925.

H. Hitier: *Systèmes des cultures et assolements*. 1925.

O. S. Morgan: *Agricultural Systems of Middle Europe. A Symposium*. New York 1935.

A. Howard: *Agricultural Testament*. 1943.

Generalized Types of Farming in the US. US Department of Agriculture. Washington 1953.

R. Dumont: *Economie agricole dans le monde*. Paris 1954.

⁵ The work as a whole is summed up by L. D. Stamp in: *The Land of Britain, its Use and Misuse*. London 1948.

⁶ Cf. Reports of the Commission on Inventory of World Land Use at the International Geographical Congresses in Washington in 1952 and in Rio de Janeiro in 1955.

⁷ These belong British, Polish, Russian, Japanese, Canadian and other studies.

results might be obtained almost mechanically from the topographical map or aerial photograph, whereas the second type of research is presently being more and more developed and deepened for both scientific and practical purposes. Here the typological trend in agricultural geography has been related to the land utilization survey — a contact which may prove very fruitful.

Investigations on agricultural typology, thanks to the fairly uniform methods exercised in research on land utilization, may themselves obtain more uniform methodical bases, whereas research on land utilization, being already of practical significance, will acquire a deeper scientific purpose. Studies on land utilization in Poland follow this pattern.

The origins of studies on land utilization in Poland date from the pre-war period when several studies of that type were carried out. However, they did not go beyond differentiation of the major forms of land use⁸. After the war, on the initiative of the Central Office of Physical Planning, Polish geographers following the pattern of their British colleagues, started discussion on a land utilization map of the whole country. Methods were then worked out, but the project of covering all of Poland with a detailed land survey had to be rejected as unrealistic, due to the lack of scientific personnel and means. The scope of work limited to the preparation of a general land utilization map of Poland on the scale of 1:300,000 based on pre-war 1:100,000 topographical maps. The work was completed in 1956 and a general land utilization map of Poland on the scale of 1:1,000,000, a photographic reduction of the 1:300,000 maps, was published⁹.

However, the idea of a detailed land utilization survey was taken up again and again, particularly in connection with regional planning. In 1953 and 1954, on the initiative of Professor K. Dziewoński¹⁰, other attempts at a detailed land utilization survey were undertaken, and work was continued in the following years. Samples of these maps were presented to the Agricultural Geography Section at the 18th International Geographical Congress in Rio de Janeiro in 1956 (J. Kostrowicki)¹¹. In the following years, due to the newly established Section of Agricultural Geography within the Institute of Geography of the Polish Academy of Sciences, these studies were considerably extended and they resulted in a final definition of the aims, concept, scope,

⁸ Cf. J. Kostrowicki: *Research Studies on Land Utilization in Poland*, „Przegląd Geograficzny” 31(1959), No. 3—4, pp. 517—533 (in Polish, English summary).

⁹ Poland. General Land utilization Map 1:1,000,000. Director and Editor: Professor F. Uhorczak. Warsaw 1957. 22 maps of elements and their combinations (Legend in Polish, English and Russian).

¹⁰ K. Dziewoński, J. Kostrowicki and others: *Temporary Instructions on Drawing Detailed Land Utilization Maps* (Project). „Dokumentacja Geograficzna” (1956), No. 1, 39 pp. (in Polish).

¹¹ K. Dziewoński: *The Detailed Land Use Map in Poland*. XVIII International Geographical Congress. Abstracts of Papers. Rio de Janeiro pp. 150—151 (in English).

K. Dziewoński: *Detailed Survey of Land Utilization in Poland*. „Przegląd Geograficzny” 28(1956), Supplement, pp. 26—31 (in English).

J. Kostrowicki: *Pol'skiye issledovaniya ispolzovaniya zemel. Izvestiya Akademii Nauk SSSR*. Seria geograficheskaya (1958), No. 4, pp. 131—134 (in Russian).

methods and techniques of the survey¹². A number of studies based on the survey were published¹³. Others are in print or are being prepared.

The aim of the land utilization survey in Poland is twofold: scientific and practical. The scientific object is the study of the forms and ways in which man's economy utilizes its natural environment (i.e., the land). The practical aim is the definition of the degree of rationality in land utilization and the drawing of conclusions in regard to a more rational utilization of his natural environment by man.

Deeply penetrating the natural, social, technical and economic aspects of agricultural economy, the Polish land utilization survey also may provide a good foundation for a geographical typology of agriculture; the elaboration of this typology is, in turn, of remarkable significance, both scientific and practical.

The following categories are included in the Polish land utilization survey:

1. The object of land utilization, i.e. natural environment evaluated from the point of view of human economy (mainly agriculture and forestry)

2. The subject of land utilization, i.e. social and ownership relations connected with land utilization.

3. The form of land utilization, i.e. the actual use of the land by particular branches of the human economy.

4. The way or manner of land utilization, i.e. the organizational and technical methods and systems and the intensity of this utilization.

5. The direction or orientation of land utilization, i.e. the qualitative economic purposes of the utilization, or, in other words, the kinds of products already obtained or to be obtained as a result of the land utilization.

6. The result or effect of land utilization, i.e. the quantitative effects of production, i.e. the volume of production obtained as a result of a land utilization that has been determined.

These six categories are obviously closely inter-related. Natural conditions exert their influence on both the method and direction of land utilization as well as on the results obtained. The subject of land utilization, i.e. the social relations or, in other words, who is the user or the owner of the land — this factor exerts its influence on the way, directions and effects obtained in land utilization. And, finally, the ways

¹² Cf. Polish Land Utilization Survey. Instructions for the Detailed Land Utilization Survey. Editor J. Kostrowicki. „Dokumentacja Geograficzna“ (1959) No. 2. 129 pp. And also: J. Kostrowicki: *Research Studies...*, op. cit.

¹³ W. Biegajło, J. Tobjasz: *Three Field Crop Rotation with Fallow System. The Village of Grabowiec*. „Przegląd Geograficzny” 29(1957), Nr. 1, pp. 131–142 (in Polish, English summary).

W. Biegajło: *Agriculture in the Suburban Zone. The Commune of Horodniany*. „Przegląd Geograficzny” 29(1957), No. 1, pp. 143–158 (in Polish, English summary).

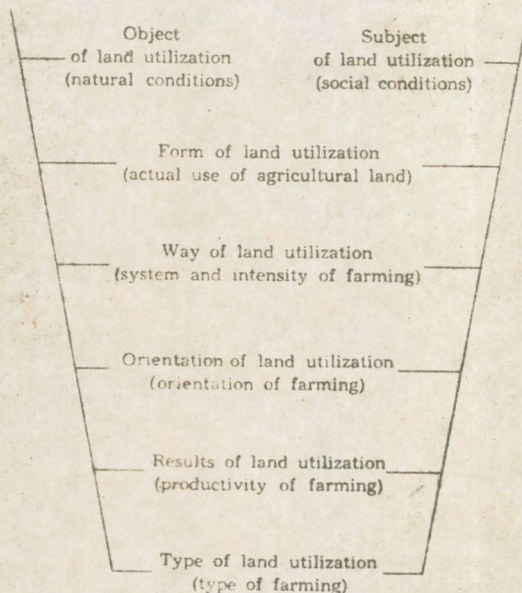
R. Szczepny, H. Piskorz, J. Rakowicz: *Studies on Land Utilization in Mragowo Commune. Materials from Research Work in 1955–1956*. „Dokumentacja Geograficzna” (1958), No. 1, 103 pp. (in Polish).

W. Biegajło: *Farming in Gdańsk Żuławy. Radunia Village*. „Przegląd Geograficzny” 31(1959), No. 2, pp. 345–350.

R. Szczepny: *Farming in Lower Piskard — the Commune of Cergowa*. „Przegląd Geograficzny” 31(1959), No. 3–4, pp. 629–644.

of land utilization are bound up with the direction of land utilization and exercise an influence on the effects, etc.

The relations among these categories are varied. Being interrelated, they are in some way connected with the natural environment, which is a separate category. A somewhat distinct category is the subject of land utilization. All the categories combined are the basis for determining the type of land utilization (= type of man's economy in nature = type of farming) understood as the shaped by the determined social and economic processes, combination (ensemble) of forms, ways, orientations and effects of land utilization.



These relations are schematically presented in the diagram 1.

The particular categories of land utilization find their expression in the various stages of the elaboration of the survey material and only some of them can be found on the land utilization map. Nevertheless, the map and especially all the survey materials, give sufficient basis for distinguishing systems, directions and types of the agricultural economy, understood as stated above.

Thus far in Poland a detailed land utilization survey (on the scale of 1:10,000 and 1:25,000) has covered about 10 thousand sq. km (about 3,850 square miles), which equals 1/30 of the whole area of the country. It is not our intention to cover the whole country with a detailed survey, since we have neither the personnel nor the means to do so. To involve greater areas in the survey would obviously be still less possible. However, this survey which penetrates deeply into the mechanism of the agricultural economy, if a proper territorial representation is considered, can give sufficient material for distinguishing the characteristic features of particular types of the agricultural

economy. The elaboration on this basis of proper indices and their cartographic analysis on a larger scale will permit a study of the extent of the types of farming.

The appropriate geographical typology of agriculture should obviously distinguish types of various ranks: a whole hierarchy of types, from those on a world scale to local types dealing with the basic local units, which are individual farms. The types of farming in the world are subject to constant changes and transformations which occur simultaneously with the alteration in their particular elements. Thus on areas having old agricultural traditions there have been a superposition of newer forms, systems and directions in agriculture upon the old and this has given rise to highly complex types. Areas which have been farmed only recently and undeveloped lands present less complicated types.

All the various types of farming may be firmly and objectively distinguished for any area, if indices are provided which properly represent the most important social, technical and economic aspects of agricultural economy.

However, the elaboration of a full system of such indices and the elaboration of world typology of farming surpasses the capacity of a single researcher and even of one country; it requires world-wide co-operation.

Thus far, the Polish land utilization survey permits us to distinguish a number of agricultural types differing in systems, intensity, direction and productivity of the rural economy. The number of studies is not large enough to enable us to state with certainty that some type of smaller extent has not been omitted. Also the other part of the work, namely the determination of the exact extent of the types distinguished, has not yet been done.

According to various studies, Polish agriculture as a whole and those of some other neighbouring countries are now in a transitional stage from the old, special, underdeveloped form of mixed West European capitalistic agriculture which has been characteristic of east-central European countries — to the new socialistic agriculture whose elements are only germinating in Poland. The latter will obviously in the future create on this area some individual types of agriculture, different from those of the socialist agriculture of the podsolich areas of Central Russia, or that of the chernozems of the Ukraine or, in particular the socialist agriculture of China.

Within the general type thus defined, the following subtypes can be distinguished in Poland:

1. Technically the most primitive and at the same time the least intensive and productive is the agriculture of north-eastern Poland. Here there can still be found strong remnants of the three-field system of farming (three-field crop rotation with a fallow field or, more frequently, three field crop rotation with one crop of lupine or seradella (sown into the fallow); fields and holdings are greatly fragmentated and are orientated to cereal or cereal and root crops, with rye or rye and potatoes prevailing. There is a large ratio of dairy cattle raising, the cattle grazing on uncultivated meadows, pastures and on fallow land. The productivity

of this type of farming is small, as is marketability mainly based on cereals, milk, dairy products and pigs.

2. On the whole, the economy of the central part of the country is similar, although it is somewhat more intensive and has a higher technical level. Here, on the heavy soils, there is four-field crop rotation based on the Norfolk system, whereas three-field crop rotation is practised on the lighter soils. Cereal and root crops orientation is prevailing here, most frequently rye and potatoes, and, on the best soils, wheat and potatoes or wheat and sugar-beet with a big share of livestock raising — mainly pigs. The productivity of this type of agriculture is low or average, its marketability depending primarily on the size of the holding or on the labour power, is mainly based on the sale of pigs, and — to a smaller extent — of milk or other dairy products, or of grains and, rarely, of industrial plants (sugar-beets, flax, tobacco).

3. The farming system of southern Poland is highly intensive but technically primitive being based on the highly fragmentated small farms. Its main stress is on dairy farming as well as cereal and root crops; root and cereal crops orientation, with rye and potato or wheat and potato prevailing. In spite of the great intensity of this system of farming, its productivity per unit area is barely average, and per labour unit it is very small. The marketability, mainly based on animal husbandry, is quite low due to the small size of the holdings and the relative over-population of the agricultural land.

4. Greater Poland (Wielkopolska) and the Opole Region have a system of farming with a direction, intensity and productivity which, although less mechanized, come closer to West-European agriculture. Here more rational methods of farming are in use, especially on arable lands, with a greatly mixed orientation which may be rye and potatoes, rye and sugar-beet or wheat and sugar-beet with an established share for animal husbandry and a large one for industrial plants. The productivity is relatively high both per unit area and per labour unit. The commercial return in these not highly populated areas comes from the sale of pigs, cereals, dairy products and industrial plants (sugar-beet, rape and others).

5. In the Western Territories a mixture of all the types discussed above appears in various proportions because these areas are now inhabited by new-comers who have brought with them various traditional methods of farming. Compared with the pre-war period, as a result of the war devastation and migration of people, there is an increase in the share of plant production, especially cereals, in relation to animal husbandry, and a decrease of productivity in the rural economy, with its commercial character preserved. These areas show remarkable regional differences resulting from the differences in natural conditions and in the origins of the inhabitants. The former Polish population who were concentrated in Opole Silesia and several counties (powiats) of the former East Prussia continue to maintain an intensive, highly productive and commercial type of rural economy, with animal husbandry predominant. The future will undoubtedly bring to this area new types of farming more related to local conditions and less to traditions brought in from outside. This process has already begun but the final formation of these types requires time.

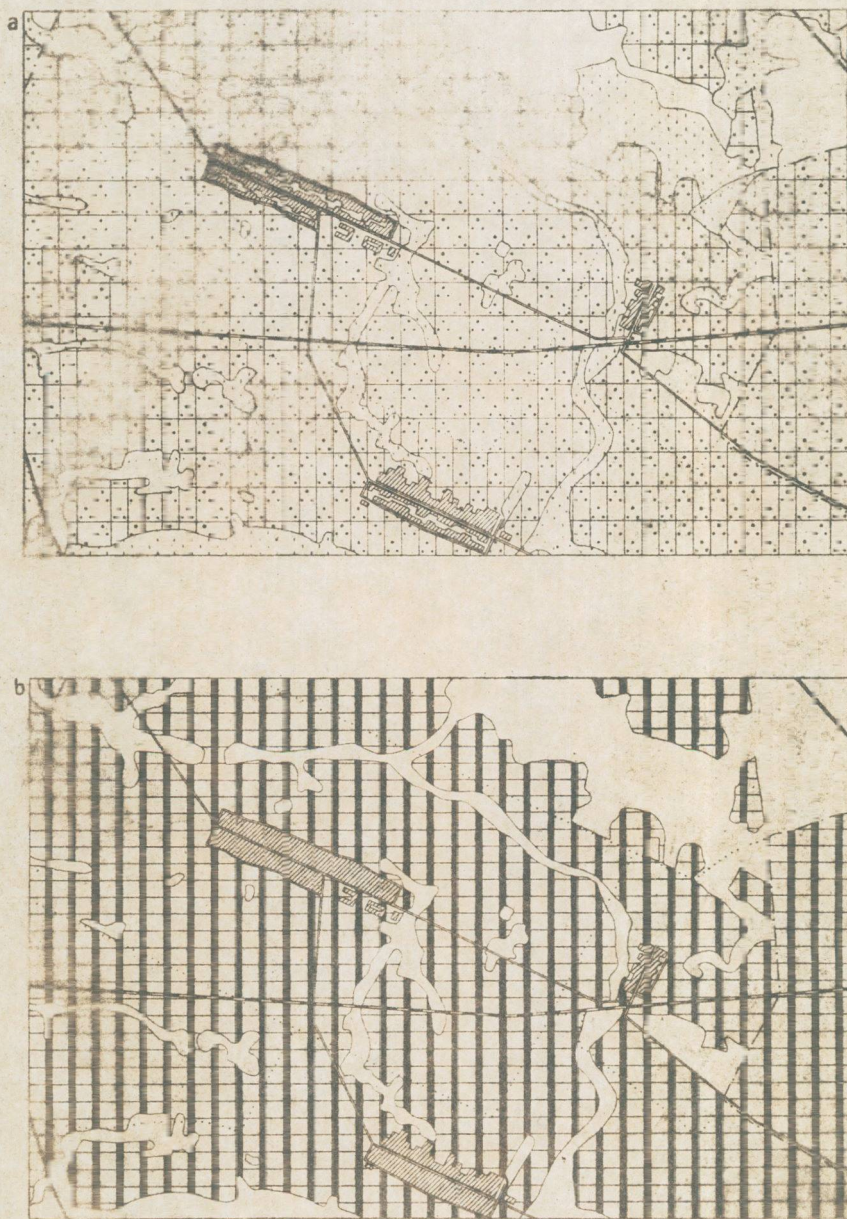


Fig. 1. Type of farming from north-eastern part of Poland. Podlaskie Region. Example from Białystok County, Parczewo commune: a — sandy or sandy-clayey podsolizce soils. Great proportion of small farms, concentrated settlement, fragmentation of lands, three-field system with fallow; b — cereal-crop origin, 61.3% cereals with rye prevailing, 15.4% root-crops with potatoes prevailing, 19.3% fodder crops with annual plants (legume or seradella prevailing) with dairying (52.3 animal units per 100 ha of agricultural land with dairy cattle prevailing). From the Land Use Survey 1956—57.



Fig. 2 — Type of farming from north eastern Poland, Suwałki Lake District. Example from Suwałki county, Prudziński commune. Clayey or sandy clayey podsolides soils: a — farms of medium size, dispersed settlement, three year crop rotation without fallow; b — cereal-root-fodder or cereal-root-crops orientation (cereals 53,3 — 61,2% with rye prevailing, root crops 14,7 — 19,5% with potatoes prevailing, fodder crops 19,2 — 23,1% with annuals: lupine or seradella prevailing with dairying (45,8 animal units per 100 ha of agricultural land with dairy cattle prevailing). From the Land Use Survey 1959

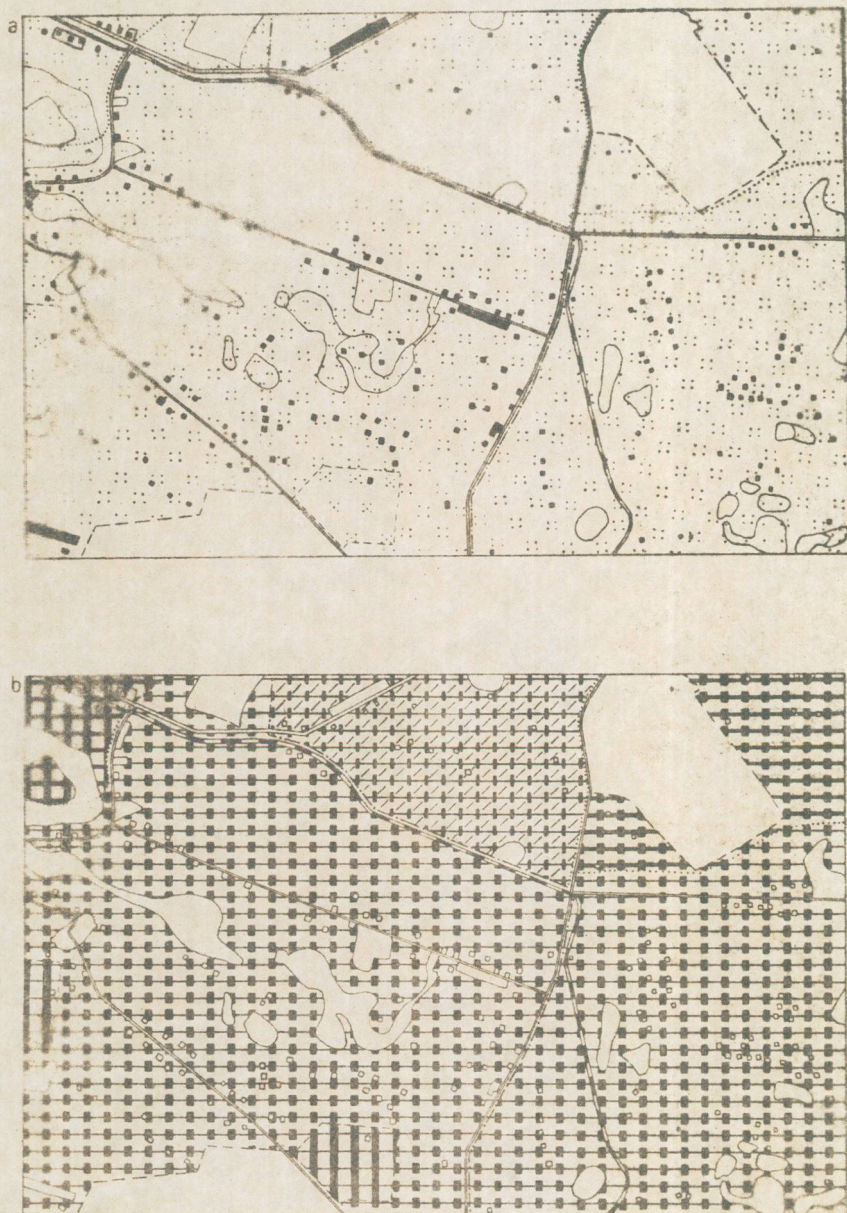


Fig. 3. Type of farming from central Poland, Lublin Upland. Example from Lublin voivodeship, Terebiniec commune. Chormozems or brown forest soils on loess.
 a — farm of medium size prevailing, dispersed settlement four-year crop rotation system, exceptionally five-year; b — cereal-root or cereal-fodder or cereal-starch-fodder organization (cereal 56.8 — 64.2% with wheat prevailing, exceptionally rye prevailing, barley 17.4 — 22.6% with potatoes prevailing — fodder crops 12.2% with multifunctional plants & clover crops prevailing) with livestock raising, pigs breeding prevailing. From the Land Use Survey 1958



Fig. 4. The type of farming from southern Poland, Carpathian Mountains, Jasko-Sanok Basin. Example — Krosno county, Iwonicz and Rogi communes (brown mountain brown or podsolised soils): a — settlement concentrated in river valleys, big, long villages, high proportion of small (~ 5 ha) farms, highly fragmented land, five-year rotation; b — cereal-root or cereal-root-fodder crops orientation (cereals 55,4 — 61,3% with wheat prevailing, roots 22,5% with potatoes prevailing, fodder crops 15,2 — 23,6% with multiannual plants mostly clover prevailing) with dairying (79,2 animal units per 100 ha of agricultural land with dairy cattle prevailing). From the Land Use Survey 1958

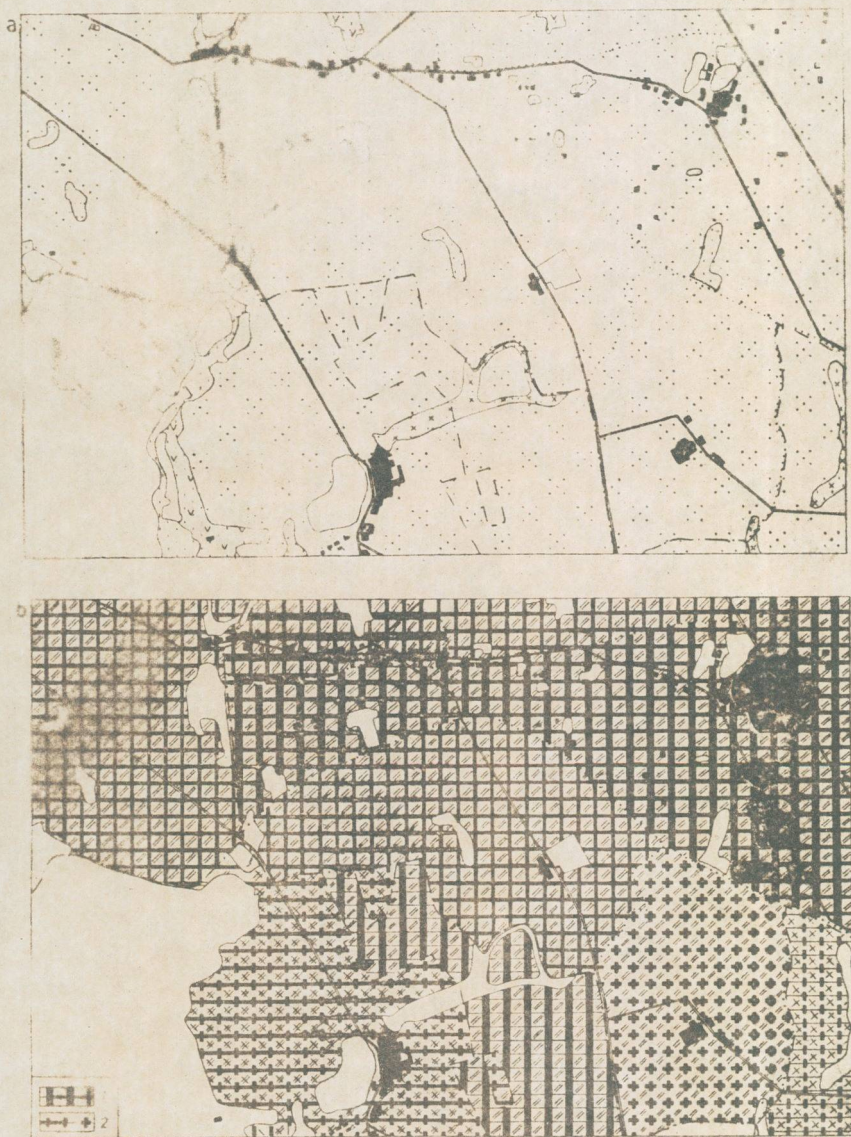
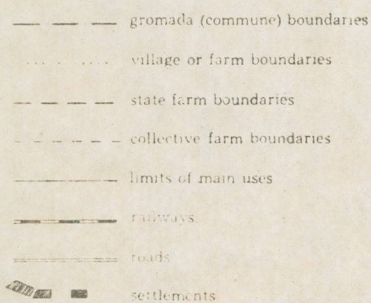


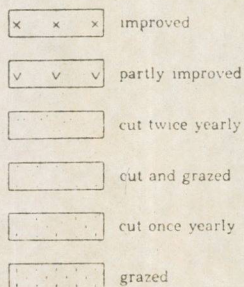
Fig. 5. The type of farming from Greater Poland — Kujawy Plain. Example from Inowrocław Country, Chelmce and Bachorce communes. Black earths with patterns of sandy soils: a — dispersed settlement, partly former manor estates (actually state farms), partly isolated individual farms. Five-year rotation; b — 1) individual farms: cereal-root crops orientation with highly differentiated proportion of particular crops (cereals 53,8 — 61,2% with rye or wheat prevailing or with similar proportion of rye and wheat; root-crops 21,7% with potatoes or sugar-beet prevailing; fodder crops 15,2% with multiannuals such as lucerne or clover prevailing; industrial crops 5,1%) with 64,2% animal units per 100 ha; agricultural land with pig-breeding (48,7%); 2) state farms (south-west and south-east of the area): cereal-root crops orientation (cereals 41,7% with wheat prevailing; state 25,4% with potatoes or sugar-beet prevailing, fodder crops 21,7% with multiannuals prevailing, high proportion of industrial crops 10,7—15,8%) with feebly developed stock-raising (48,7% animal units with cattle prevailing). From the Land Use Survey 1957



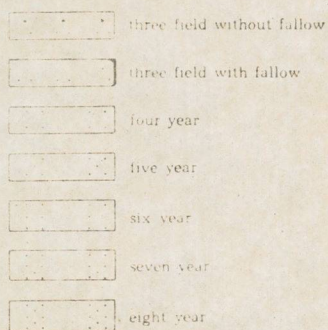
Fig. 6. Type of farming from North Western Territories, Baltic Coast Region, Koszalin county, Miłogoszcz commune. Heavy clayey brown or podsolised soils prevail. a — 1) individual farms mostly dispersed settlement, isolated farms, four-year rotation, 2) state farms — concentrated settlement, former manor estates, seven or eight year rotation; b) — 1) individual farms: cereal-root or cereal-root-fodder crop rotation (cereals 61.2% with rye prevailing, roots 18.7 — 22.3% with potatoes prevailing, fodders 16.6% with clover prevailing, industrial 5.7% with dairying (55.5% animal units with dairy cattle prevailing), 2) state farms — cereal-root, cereal-root-fodder, root-cereal-fodder or even fodder-cereal-root crop orientations (cereals 38.2 — 45.3% with wheat or rye prevailing; root 11.7 — 20.3% with potatoes prevailing; fodders 23.7 — 40.1% with multiannual crops as clover and lucerne, prevailing; large share of industrial crops 8.9 — 15.7% with smaller role of livestock raising (42.1 animal units with dairy cattle prevailing). From the Land Use Survey 1958



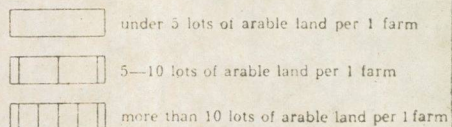
PERMANENT GRASSLAND



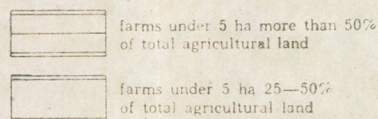
ARABLE LANDS Crop rotation



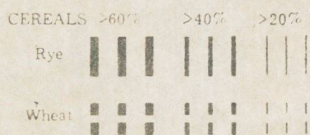
LAND FRAGMENTATION



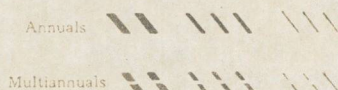
SIZE OF FARMS



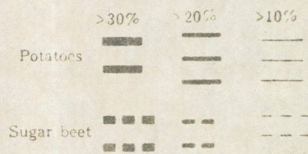
ORIENTATION IN LAND UTILIZATION



FODDERS



ROOTS



INDUSTRIAL CROPS



6. In the environs of the larger towns and industrial centres a cosmopolitan type of suburban agriculture has originated, characterized by high intensity but little mechanical aid. Intensive manuring has pushed the role of crop rotation to second place. Predominant are root vegetables or root and cereal crops, mainly with vegetables, vegetables and potatoes or potatoes and cereals prevailing, with a quite remarkable proportion of pig and dairy cattle raising. Locally orchards play a considerable role. The economy is highly productive, its marketability being primarily based on the sale of vegetables and potatoes, more rarely fruits and flowers, and also pigs and milk.

The typology presented above relates to the individual farming economy which in Poland occupies 85.4 per cent of the agricultural land, and partly to cooperative farms, especially smaller ones. State Farms (involving 12.3 per cent of the agricultural land) and some cooperative farms have developed a different type of farming. Apart from regional differences, a common feature of this group of farms is a considerable degree of mechanization. The emphasis is on cereals or cereals and fodder with a large share to industrial plants; the proportion of livestock raising is smaller than it is in individual farming. Up to 1938, this group of farms had practically not applied a rational crop rotation; they are now in a transitional phase leading to the introduction into their farming system of a crop rotation covering many years. Although the productivity of these farms is lower than average, their marketability is high and is based primarily on cereals and industrial plants, and — to a smaller degree — on animal products. The fact that most state farms are situated in the northern part of the country which suffered great war devastation and now lacks man-power in agriculture, has had its influence on the intensity, direction and productivity of the farming. Much better results are obtained by the state farms of Greater Poland and Silesia. The regional differentiation of the rural economy of the state farms requires detailed study.

Research on the geographical typology of Polish agriculture will be continued through further detailed land utilization surveys. Their intensity should be increased so that final conclusions can be drawn, also by means of simplified surveying probably on the scale 1:300,000, based on the method of detailed land use survey covering the whole country. The latter by means of proper indices, will make it possible to determine the territorial extent of the types previously distinguished. We also are going to start comparative studies in other countries.

Studies on the geographical typology of agriculture are of great scientific significance since they allow us to classify phenomena and facts in a scientific way, and to generalise them. Also their practical importance is great because they help us to learn of phenomena which have great practical significance; they allow us to draw conclusions regarding the rationality or irrationality of the present farming system and possible necessary changes in the future. It would be highly desirable to base such a typology on uniform objective criteria valid for larger areas. For this purpose the land utilization survey which enjoys great popularity in many countries would be of assistance.

