

The World's Largest Open Access Agricultural & Applied Economics Digital Library

## This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<a href="http://ageconsearch.umn.edu">http://ageconsearch.umn.edu</a>
aesearch@umn.edu

Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

## PROCEEDINGS OF THE NINTH INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS

HELD AT
TEEKKARIKYLA, OTANIEMI
FINLAND
19-26 AUGUST 1955

THE IMPLICATIONS OF TECHNICAL CHANGE IN AGRICULTURE

LONDON

OXFORD UNIVERSITY PRESS

NEW YORK TORONTO

1956

## INDEX

Ackerman, Joseph, on tenant farming, Baade, Fritze: on food supplies and international 371-2 Africa, central East, sociological probtrade, 460-3 lems of, 122-3 on politics and technical progress, 529-Agricultural economics, 2, 3, 5-6, 13 ff., 30 Bandini, Mario: 159 ff., 267 ff., 340 et passim 'The inadequacy ... of contemporary five elements or factors of, 138-9, 144institutional systems: pattern of rural mathematics applied to problems in, 398 settlement', 339-53 methods used in Russia, 392-4 on mechanization and labour needs, 280 Scandinavia and, 17-31 on technical knowledge, 489-90 statistics and, 267, 270, 283-4 Baptist, A. G., on political obstacles to economic welfare, 422-5 study in Russia of, 386-414 Agriculture: Bell, Bernard, on farm loans of Export-Import Bank, 203-4 efficiency in, 30, 134 ff., 140, 142 Bellerby, J. R., 'The relative incidence on forestry and, 286-321 planning of production, 373 ff. agriculturists and on other groups of the benefits resulting from technical state policies and, 440-1 students for professional work in, 439change in agriculture', 134-42, 155-6 Beltran, G., on the capital needed for Akhtar, S. M., on technical change espetechnical change, 216-18 cially in Pakistan, 103-4 Bergmann, D. R.: Aktan, R., on the capital needed for techon clustered and scattered farms, 370 on the influence of consumption nical change in Turkey, 211-12 Algeria, crop production in, 239 changes on the use of resources, 238-40 Almonacid, P. N., on the capital needed Bhattacharjee, J. P., on sociological and for technical change, 205-8 cultural problems in farming, espe-Anderson, W. J., on farm output in cially in India, 130-3 Binns, Sir Bernard O., on farm credit, 196 Canada, 237 Andersson, A., on land reform in Sweden, Black, John D., on farm output in the United States, 237 Bloch, Marc, on European agriculture, 37 Aresvik, O., on international trade, 454-7 Bolgov, A. V., 'The scientific foundations Argentina, loan insurance system in, 206, of the planning of agriculture in the 207-8 Arteaga y Ortega, J., on international U.S.S.R.', 373-86, 402-6 trade and agricultural products, 467-8 Bombay Milk Scheme, 57 Ashby, Prof. A. W., on farmers and bank-Bookhout, B. R., economics of farm labour and, 161 & n. 2 ing, 214 Booth, J. F.: agriculture and technical change in, 49-'The influence of consumption changes on the use of resources and on tech-59, 94-95 crops in, 225 nical change in agriculture', 221-38 Astrand, H., on technical change in on technical change and prosperity, 511-12 Sweden, 191-3 Brandão, E. D., 'The meaning of techni-Australia, 135 utilization of pastures, 174 cal change in the context of the agricultural economy of Brazil', 88-Aziz, U.: on the capital needed for technical 91 Brazil, 86, 89, 350. change, 208-11 on sociological and cultural problems in agricultural change and industrialization in, 64, 88-91 farming, 123-4

15

Consumption: Britton, D. K .: on international sharing of technical measurement of changes in, and cateknowledge, 489 on employment and population structure, 263-70 Butler, I. A., on international trade, 457-Calder, Ritchie, on science and human betterment, 107 Canada, 136, 237 consumption changes in, 224 crops in, 227-8 incomes, agricultural, in, 154-5 livestock production, 177, 231-2 technical change and statistics of, 236-7 Capital, agricultural, 75, 87, 90, 165, 369 capital funds, 159 investment and, 173, 218, 219 Cardon, P. V., 'The activities of governmental and other agencies in encouraging technical development', 412-28 Case, H. C. M., on differing local conditions, 490-2 Cave, W. E., on the tenant farmer and owner-occupier, 367-70 Cépède, M.: 'The meaning of technical change in the context of the agricultural economy of France', 31-38 on technical change and increased leisure, 509-10 agricultural development in, 58, 98farms in, 442 forestry in, 314-17 technical development in, 441-5 Ching-Tai, Chang, on development in China, 441-5 Chonchol, J.: on the capital needed for technical change, 218-19 on Latin America, 95-96 Ciarrocca, V., on capital and technical change, 216 Coffee plantations, 89 Colin, Clark, 'The relation between the pace of technical change in farming and the level of agricultural prosperity', 496-502 Colombia, 62, 193 Colon-Torres, R.: 'The sociological and cultural problems associated with

gories of, 235-8 resources and technical change and, 166, 221-46 Engel's Law and the Giffen Law, 24 Co-operative movement and Co-operatives, 43 ff., 58, 93, 100, 102, 119, 152, 168, 185, 192-3, 198, 315, 317, 336, 349-50, 374, 443, 444 Costa Rica, agricultural change in, 62 Cotton, 79, 232 Craib, I. J., thinning of exotic pines and, 300, 301 Credits, agricultural, 90, 195-220, 327, 348-9, 355 Dairy farming, 19, 27-29, 169 ff., 190, 192, 230, 313, 333 *See also* Milk Davies, J. L., on the marketing and distribution of milk, 168-74 Denmark, 190, 248, 256, 274, 283, 284-5 economic change in, 248 ff. forestry in, 300 labour emigration and population structure in, 247, 257 ff., 262-3, 265 smallholdings in, 262, 263 technical change in, 18-31 wages in, 282 Derteano, C., on technical change in farming and marketing, 189-91 Desai, M. B.: on land-tenure reforms in India, 363-4 on technical change, 104-5 Diet, Westernization of, 238-40 Dietze, C. von, on the relative incidence of the benefits from technical change, 142-6 Dixey, R. N., on land tenure, 362-3 Dooring, F., labour surplus and, 268 Duncan, J. F.: on sociological and cultural problems in farming, 115-17 on wages and employment, 281-3 Economics, see Agricultural economics Education, agricultural, 65, 67-69, 72, 81, 90-91, 94, 96, 97-98, 111 Brazil and, 90-91 Latin America and, 65, 96 North America, in, 67-69, 72, 81 Egypt, 350 technical change in agriculture', 107-Elmhirst, Leonard K., Presidential Address, 7-15

Employment, 291 Farms (cont.): population structure and technical change and, 247 ff., 263-70, 283-5 wages and, 281-3 Engberg, Russell C., 196 Englund, Eric: 'The interaction between technical changes in agriculture and the pattern of international trade', 446-54 on consumption changes and the use of resources, 246 Europe, 3, 4, 37, 262, 266, 333, 335 consumption changes in, 223 Co-operatives in south-eastern, 43, 48 south-eastern, and technical change in, western, 32 See also countries by name European Economic Co-operation, Organization for (O.E.E.C.), 4, 334-5 Evelpidis, C.: on agriculture and forestry, especially in Greece, 319-21 on technical change in Greece, 92-94 Export-Import Bank of Washington, D.C., 203, 205, 219 Extension Services, Agricultural, 67, 87, Food: Farm management, 185, 199-200 Farmers: economic associations of, 349-50 tenant farmers and owner-occupiers, 367-70 Farming: farming communities, 134-5 part-time, 86, 100, 101, 334-5, 361 peasant, 36, 43, 74, 86, 364 prosperity and, 496 ff. subsistence, 41, 134, 135, 149, 330, 339 tenant, 362 ff. Farms: capitalistic, 86 Chinese types of, 442, 443, 444 clustered and scattered, 370 Collective, 50, 54, 55, 380, 381, 383, 384 Co-operative, 50 family farms, 5, 76, 86, 146, 152, 165, 170, 199, 272, 335, 337, 339, 341, 349, 358, 359, 360-1, 370 fragmented, 103, 104, 106, 350-2 'industrialized', 157 ff. industry in Madison County, U.S.A., and, 161-2 management of, 163

nomadic, 86 ownership of, 163-4 Russian, large, 399-400 share-cropping, 240 six types of, 86 size and layout of, 329-39, 356-9 small, 49-50, 330-1, 333 ff. state, 86, 100, 382 type and size of, 357-8 working of, 164-7 Fernandez, R. Fernandez y: on tenure systems, 353-6 on technical change, 94 Fertilizers, 26, 46, 47, 57, 58, 71, 86, 234, 236, 297 world use of, 236 Fibres, 232-3 Finance of the additional capital required for technical change, 194-220 Findlen, P. F., on dairy farming and marketing, 184-9 Finland, 1-6, 9, 343, 360 agriculture in, 288 ff. forests and, 288 ff., 304, 307, 318-19 technical change and agriculture in, 18-31, 135 changes in patterns of consumption of, 238-9, 246 consumption of, and income, 241 ff. industrial revolution and, 245 production of, 238-40 supplies and international trade, 460-3 Food and Agriculture Organization (F.A.O.), 62, 63, 206, 238, 244, 266, 267, 269, 284, 318 European Agriculture: a Statement of Problems, 266 study on food consumption and income level of, 244 World Food Survey, 244 Forestry and forests, 381 agriculture and its interdependence with, 286-321 cattle grazing and, 287, 292, 320-1 co-operation in, 304 ff. destruction of, 286-7, 312 domestic animals and, 292, 293, 320 economics of, 299-300 investments in, 305-6 labour for, 303 ff., 307-8, 313 management of, and technical change, 294-306 mechanization and, 293, 296-7, 302-6 protective forests, 306 ff., 317

464-5

Helsinki, University of, 1 ff. France, 87 Hiley, W. E., 'The impact of technical agriculture in, 33-38, 91-92 food consumption in, 239, 240 forestry in, 312 labour in, 91-92 peasant associations in, 152 production in, 32 f., 33-35 technical change in, 31-38, 152, 239-40 Frozen food industry, 166 Fruit production, world table of, 228 Fruits: apples versus citrus fruits, 229-273-4 Horring, J.: Gaetani-D'Aragona, G., on governmental action in technical development, 322-9 437-9 Germany, 118, 119, 361 agricultural change in, 158 rural exodus and, 118, 133 state forests of, 299 Grazing of cattle, 287, 292, 320-1, 369 Great Britain: 306-9 agricultural change in, 158 agricultural income in, 135-6, 138 capital needs in, 215 consumption changes and resources in, 221, 222-3 dairy farming in, 169, 171-2 economic changes in, 248 ff., 280 emigration, agricultural, 247 ff., 257 food expenditure and consumption in, India: 241 ff. forestry in, 296, 301, 311-12 governmental and other agencies in, 428-33 income in, 222-3 131-2 land tenure in, 362, 368 population structure and agricultural labour, 257, 265 rents and prices in, 530-1 trade and, 141 wages in, 137, 281-2 Greece, 268 agricultural development in, 93-94 forestry in, 319-21 Gulbrandsen, O., on labour in Sweden, 278-9 Halcrow, H. G., on the benefits from technical change in North America, 146-9 Hanau, A., on the changes in consumption and the use of resources, 245-6 Healey, D. T., on international trade,

changes on woodland management', Hirsch, G. P., on sociological and cultural problems, 129-30 Hjelm, Lennart: on the benefits from technical change in Sweden, 150-1 on forestry and agriculture, 313-14 Holmström, Sven, on mechanization, 'The inadequacy . . . of contemporary institutional systems: land tenure', on technical change, 104 Huda, M. N.: on sociological and cultural problems in Pakistan, 121-2 on technical change, 105-6 Huni, A., on forestry, especially Swiss, Incomes, agricultural, 30, 79 ff., 84, 93, 126, 135 ff., 146 ff., 321, 327, 336-8, forest incomes in Finland, 318-19 oriental outlook and, 123-4 table of ratios, 136 technical progress and, 241-5 agricultural change in, 57, 104-6, 120 ff., 276-8, 363-4 industries and, 127, 131 social and economic change in, 127, Industry and industrialization, agriculture and, 105, 127, 131, 135, 141, 144, 149, 151-2, 158, 161-2, 247, 270, 283, 361 Institutional systems: technical development and the inadequacy of, 322-72 two types of, 359 Inter-American Institute of Agricultural Sciences, 62 International Bank for Reconstruction and Development, 195-6, 203, 204, 205, 216, 219 International Journal of Agrarian Affairs, 306, 307, 311 Investment, 111-12, 218, 219 agriculture and, 45, 76, 86 forestry in, 305-6 industry and, 218-19

Irrigation, 56, 444 China and, 99 Eruope and, 45 Yugoslavia and, 101-2 Italy, 86-87, 268, 346, 350, 360, technological change and capital in, 216 Jacobsen, A. P.: on international trade, 469 on price stabilization and nutrition possibilities, 536-8 Jakhade, V. M.: on employment policies, 276-8 on problems in India, 127 Japan, 271, 272 agriculture and development in, 49, 51, 55, 57, 58, 97, 101, 272, 333 Johnson, Glen L., 513 on technical change and the level of prosperity, 507-9 Johnson, Sherman E.: 'The meaning of technical change in the context of the agricultural economy of North America', 66-86 on balanced production and extension methods in the United States, 512 Johnson, V. Webster, and Engberg, Russell C., study on farm credit of, Jones, Arthur, on activities of governmental and other agencies in farm development in Great Britain, 428-

Kalkkinen, E., on forestry and agriculture, 318 Kaulsky, Karl, 358, 375 Kellogg Foundation, 7 Keynes, Lord, on man's political problem, 10 Klatzmann, J.:

on the benefits from technical change, 153-4

on technical change in France, 91-92 Krašovec, Stane, 'The meaning of technical change in the context of the agricultural economy of southeastern Europe', 38-49

Krišthof, M., on technical change in the agricultural economy of Yugoslavia, 101-3

La Peña, H. Floresde, on technical change in Latin America, 95

Labour, agricultural, 23, 32, 82, 87, 139, 247 ff., 398, 400 decline in, 117, 125-33, 268 farm-size and, 330, 333 forestry and, 303 ff. fragmentation of holdings, 35 ff., 41 & n. 1 immigrant settlers, 265 incentive income ratios, 136 mechanization and, 91-92, 248 ff., 270-7, 280, 323 productivity and, 32-33, 397 technical change and occupational structure of population and, 247-85 socialization of Russian, 374 ff. world shifts in use of, 224 ff. Land tenure: communal, 328, 356 co-operation and, 327-8 institutional systems and, 322-9, 353-6, 364 ff. requirements for adequate, 324-8 reforms in, 347, 350, 353 ff., 363, 365-6 technical change and, 111 tenants and owner-occupiers and, 362-4, 367-72 Latin America, 60 ff., 85, 95-96 education and, 65, 96 exports, 95-96 Latifundia, 96 rural settlement in, 342-53 technical change and, 59-66, 90 Lee, Shison C., on land-tenure systems, 364-6 Livestock and livestock products: artificial insemination, 172, 175, 185, 358 breeding of, 175 consumption of, 244-5 distribution and marketing of, 174food for, 28-29, 185 production of, 19-20, 174 ff., 230-2 refrigeration and, 176, 177 world table of, 226 Lloyd, E. M. H., on political obstacles to economic welfare, 529 Long, W. H., on international trade and self-sufficiency, 463-4

MacGregor, J. J., on agriculture and

See also Mechanization; Tractors

forestry, 309-13

world use of, 236

table of, 20

Machines and machinery, 20 ff.

pastures in, 174

Mackenzie, W., on the benefits from tech-Niehaus, H.: nical change in Canada, 154-5 'The inadequacy . . . of contemporary Malassis, L., on pace of technical change institutional systems: size and layand level of prosperity, 502-7 out of farms', 329-39 Malaya: on politics and technical progress, 531-2 rubber production and technical change, North America, 66-86, 71, 97-98, 224 crop production, 70-71, 78-79, 225 233 and capital in, 209-10 education in, 67-69, 72, 81 Marketing: fibre production in, 232 Latin America and, 64-65 incomes in, 79 ff., 84 livestock and, 174-81 retailing and livestock production in, milk and, 168-74, 184-9, 192-3, 234 177, 178, 179, 180, 230-2 technical change and, 157-93 six events transforming farm produc-Marketing and markets, 8, 58, 69, 167, tion, 70-72 North Atlantic countries, benefits from 176, 181-4, 193 Marshall, D. A. Bruce, on the marketing technical change in, 135 ff., 143, 146 ff. and distribution of livestock, 174-Norway, technical change in, 18-31 Obolensky, K. P., 'The study of the Maspetiol, R., on national policies, economics and organization of agri-Medici, G., 'The meaning of technical culture in the U.S.S.R.', 386-94, change in the context of the agricul-406-14 tural economy of Italy', 86-88 Ohkawa, Kazushe, on technical change Mexico, 61 and the employment situation, 270-3 Osara, N. A., 'The interdependence of agricultural change in, 62, 64, 95 Michailovic, K., on problems in central agriculture and forestry', 286-94 East Africa, 122-3 Milhau, J., on the benefits from technical Paarlberg, D., on sociological and culchange in France, 151-3 tural problems, 124-5 Milk, 27-29, 401-2 Pakistan, 50 consumption of, 243 agricultural change and, 103-4, 105-6, marketing and distribution of, 168-74, 120, 121-2 184-9, 192-3, 234 Palestine, rural settlements in, 343, 350 Minderhoud, G., on the benefits of tech-Pedersen, H. A., on population and the nical change, 153. agricultural labour force, 280-1 Misawa, T., on farming in Japan, 101 Pedersen, Jørgen: Morales, J. O.: 'The impact of technical change on the 'The meaning of technical change in the employment situation within agricontext of the agricultural economy culture and on the occupational structure of the population', 247-65, 283-5 of Latin America', 59-66 on sociological and cultural problems on arable land for workers, 397 in Puerto Rico, 128-9 Peru, livestock breeding in, 190-1 Murray, William G., 'The finance of the Philippines, the: additional capital required for techpopulation of, 125 nical change', 194-205, 219-20 social and cultural problems in, 125-6 Mutualité Agricole (France), 152 Pig production, 178-9, 190, 230-1 Pihkala, K. U., 'The meaning of technical Nash, E. F., on consumption changes and change in the context of the agriculthe use of resources, 240-5 tural economy of Scandinavia', 17-31 Nazario, L. A., on problems in farming Planning of agriculture in the U.S.S.R., in Puerto Rico, 129 373 ff. Netherlands, the, 268, 325, 370 Plantations: land tenure in, 328-9 American, 280-1 rural settlement in, 343 Asian, 50-51, 54-55 New Zealand, 135 Political obstacles to economic welfare,

514-32

Population, 39-40, 87, 129, 225 consumption change and, 233-4 employment and technical change and, 247-85 farm managers and, 260, 261, 278 food resources and, 10 growth of, and control, 121, 238 growth-rate and labour force, 271-3 movement of, 160-1 occupational structure of, 247-85 school education tables, 68, 81 surplus, 116 Posada, A. J., on technical change in marketing, 193 Poultry industry, technical change in, 179-80 Prices, 76, 78, 89, 313, 530-1 demand and, 153-4, 352 labour and 'real price', 251, 254-7 price policy, 97, 150-1 production and, 61, 235, 239 supports, 89, 235, 353 Prosperity, agricultural, technical change and, 496-513 Puerto Rico, 113-15 development in, 113-15, 128-9 Raeburn, J. R., on economists' contributions to technical development, 482-7 Raup, P. M., on economists' contributions to development, 492-3 Reason, P. M., on rents and guaranteed Scotland: prices in Great Britain, 530-1 Refrigeration, 176, 177, 338 Research: methods in Russia, 400 plant breeding and, 57 Russian scientific institutes, 388-9 United States, in, 66 ff., 84, 85 Retailing, distribution and, 178, 179, 182 Sheep, 232 Rice, 11, 57, 105 Richardson, J. ff., on international trade, 466-7 Robinson, K. L., 'Political obstacles tending to retard the increased economic welfare offered by technical change in agriculture', 514-22, 532 Rolfes, M., on two types of institutional system, 359-61 Rubber, production of, 209, 232-3 Rural settlement: institutional factors and, 341 ff. 127-8 Latin America and, 342-53 Smallholdings, 356 Denmark, in, 262, 263 pattern of, 339-53 problems of, 344 ff. Sweden, in, 279

569 Rural settlement (cont.): states and, 343 ff., 359-61 types of, 342-4 Russia, 8, 54, 336, 376, 397 co-operatives in, 374 economics and agriculture in, 386-414 land tenure, 398 milk production in, 401-2 scientific planning in, 373-414 specialization and distribution in, 377, Saari, Eino, on forestry incomes, in Finland, 318-19 Sambergs, A., on the capital needed for technical change in Sweden, 212-Scandinavia, 17-31, 282, 433-7 credit system and income in, 18, 30, 150, 151 capital in, 212-13 land tenure in, 18-19 milk production in, 27-29 technical change in, 17-31 Schiller, O., on sociological and cultural problems in Germany, 117-21, 133 Schultz, T. W.: 'The contribution of the economist to programmes of technical development', 470-82, 494-5 economic organization of agriculture and, 162 & n. 1 agricultural change in, 116, 117 wages in, 282 Sen, S. R., 383 'The meaning of technical change in the context of the agricultural economy of Asia', 49-59 on international trade, 468 Share-cropping, 326-7, 368, 369 Shih-An, Ma, on technical change in China, 97-101 Silviculture, 286, 291, 293 Sinclair, S.: on students for professional agricultural work, 439-40 on technical change in North America, 97-98 Skovgaard, K., on farm-size structure, on sociological and cultural problems,

Thomas, Prof. Edgar, 8 Smith, Adam: Thomas, W. J., on the capital needed for farm income and, 138 technical change, especially in the on urbanization, 240 Smith, J. H., 282 United Kingdom, 213-16 on migration from agriculture and Thünen, Johann Heinrich von, 330 wages, 279-80 Timber, 289–90, 297 Smith, M. G., on the use and exchange of use of, 289, 308 Toynbee, Arnold, on human response to technical knowledge, 493-4 Sociology, 14-15, 35 challenge, 112 social change, 17, 130 ff., 269 Trade, international, 95-96, 248 social and cultural development in historical progress, 157-8 Puerto Rico, 114-15, 128-9 Russia and, 402-3 technical change in agriculture and, technical changes and the interaction between, 446-69 two types of problem, 129-30 Transport, 183-4 Soils and soil surveys, 57, 71, 164, 324 Trees, 298, 318 cultivation of, 295-6, 297 ff. conservation, 102, 287, 371 forests and, 296, 307, 314, 315 hybridization, 296 Møller's principle for, 298, 301 South Africa, forestry in, 300 Stensgård, A. H., on non-governmental thinning of, 297-302 Tschajanow, —, 330 agencies in Nordic countries and agricultural development, 433-7 Lehre von der bäuerlichen Wirtschaft, 337 Streyffert, T., on technical change in Tung-Tai, Tao, on forestry in China, forestry, especially in Sweden, 302-6 314-17 Stringan, E. W., on animal breeding, 175 Turk, Rudolf, on economists' pro-Sturrock, F. G., on technical change in grammes and technical progress, agriculture and in distribution, 181-4 487-9 Sweden, 262, 263, 273-4 Turkey: agriculture and the labour force in, 262, credit system, agricultural, in, 211-12 tractors and village life in, 120 263, 264, 278-9 consumption changes in, 223 Co-operatives in, 192-3 Under-developed countries, 65, 121, 127, dairy farming in, 192, 230 130-3 agricultural changes and state activities economic change in, 248 ff. forestry in, 303-6, 313-14 in, 52 ff. income and price policy in, 150-1 economic development, 130-3 labour and population structure, 257 ff. economic transition and, 92, 127 land reform in, 366-7 food consumption, 245 smallholdings, 279 mechanization and, 120-1 surplus populations and, 115-16 technical change in, 18-31, 191-3, 212technical change and capital in, 208-Switzerland, forestry in, 306-9 12, 214-15, 217-19 traditions and, 132 Taiwan (Formosa), land reform in, 365-6 Unemployment, 48, 258 Tablante, N. B.: percentage tables, 249 on problems in the Philippines, 125-6 wages and, 249 ff., 252-3 on technical change in Asia, 94-95 See also Employment United Nations Economic Commission Taylor, Henry C., 15-16 Technical knowledge, sharing of, 489-90 for Europe, 223 Technical rating in Russia, 392-3 United States, the, 3, 62, 82, 160 ff., 199, Technology: 201, 206, 256, 342, 368, 371-2 benefits of, 134-56 agricultural change in, 66-86, 158-9, culture and, 108 ff. 160 ff., 236, 237 North America and, 79-86 consumption changes in, 223-4 techniques distinguished from, 17-18 dairy farming in, 172-3, 185-8 Thar Desert, 287 economic changes in, 248 ff.

United States, the (cont.):
employment in, 280-1
fibres and, 232
forestry in, 296
fruit production and, 229
income in, 136, 147-8
labour in, 72
livestock in, 71
marketing and distribution in, 166-7
prices and, 76, 78
under-developed regions, 81
Urbanization, 130-1
agriculture and, 240
population density and, 233-4

Vegetable oils, 338-9
Venezuela, 197, 202
Virolainen, Johannes, 5-6
Virone, L. E., on small land properties, especially in Italy, 364
Vries, Egbert de, on the International Bank, 204

Wages, agricultural, 128, 133, 137, 144, 249 ff., 261, 272, 274, 279-80, 281-3 labour migration and, 279, 280 mechanization and, 254 ff. prices and, 282 ratios of, 135 ff.

Wages, agricultural (cont.): tables of, 137, 249, 251 unemployment and, 249 ff., 252-3 Warren, George, 8 Water conservancy, China and, 443-4 Welfare, economic: political obstacles due to technical change and, 514-32 science and, 107 Westermarck, N., 1-5 Whetham, Edith H., on international trade, 465-6 Wibberley, G. P.: on agricultural employment, 274-6 on education, 513 Wielburski, R., on progress in Poland, Women, labour force and, 258, 262-3, 264 Wool, production of, 232 Yajima, T., on Japan, 96-97 Yellow River, the, 314-16 Young, E. C., on the marketing and

Young, E. C., on the marketing and distribution of farm crops, 157-67
Yugoslavia:
fertilizers in, 46-47
irrigation in, 101-2
technical change in, 39, 40, 41, 42 ff.,

101-3, 292

PRINTED IN
GREAT BRITAIN
AT THE
UNIVERSITY PRESS
OXFORD
BY
CHARLES BATEY
PRINTER

TO THE UNIVERSITY