

SCIENTIFIC FARMING TO CONQUER DROUGHT ALONG THE VOLGA

Some 77,000,000 roubles (about \$35,000,000) have been appropriated by the Soviet government to fend off famines in the Volga district. On experimental farms attempts are being made to find the best system of crop raising to offset the disadvantages of the irregular rainfall in the famous famine region of southeast Russia known as the Lower and Middle Volga.

The average precipitation in this huge section is only 16 inches per year, conditions which are about the same as those in the state of Utah, according to a report by N.M. Toulaikoff, director of the agricultural experiment station at Saratoff, made to a committee of the Geographical Society of Geneva studying world calamities. The same conditions prevail in the south of the Ukraine and a considerable part of northern Caucasus.

If advantage were taken of all the natural factors which go to make up the local climate and if modern methods of agriculture were used, there would be enough moisture to insure a regular succession of crops, M. Toulaikoff maintains. Taken as a whole this part of Russia has never been extensively cultivated and in consequence is very fertile. Rye and summer wheat cultivated under modern conditions have been made to produce heavier yields than were ever before obtained in this section. Introduction of Indian corn, millet, beets and other vegetables which do well in hot weather might very profitably lead to cattle breeding and an increased milk supply it is believed.

Since drought in April, May and June always spelled disaster to 90 per cent. of the usual crops sown, in the old days the peasants always kept on hand reserve supplies to carry them over the bad years. Agricultural conditions, however, like everything else, have been completely unbalanced with consequent distress to the rural population.

The only solution, declares M. Toulaikoff, lies in building up a carefully organized system of farming that takes full advantage of natural local conditions, since irrigation on such a large scale and under present conditions is out of the question.

SMALLEST PARTICLES SAID TO SURROUND ELECTRONS

That particles even smaller than the electrons, hitherto supposed to be the smallest things in the world, surround the parts of which atoms are built up, and that this hypothesis may reconcile the old wave theory of light and the newer "quantum" theory, is the suggestion made by Sir Joseph Thomson, considered the leader of British physicists. This was made in his recent Kelvin lecture before the Institution of Electrical Engineers. According to modern notions, an atom consists of a central, rather massive, nucleus charged with positive electricity called a proton, surrounded at relatively great distances by ultra-minute particles of negative electricity called electrons, which rotate in different orbits around the nucleus.

In order to reconcile the modern view that energy is omitted in small separate bundles or "quanta", with the older ideas, Sir Joseph said, it is necessary to assume