

## ENGINEERING

## Antiquated Science of 1875 Slows Progress in Defense

THE SCIENCE of mechanisms or of moving machinery, as taught in our engineering schools, is antiquated and useless so far as the production of new machines, particularly of automatic machinery—so much and so quickly needed in our defense effort—is concerned.

This statement was made by Prof. A. E. Richard de Jonge of the Polytechnic Institute of Brooklyn at the meeting of the American Society of Mechanical Engineers in New York.

It all goes back to Reuleaux's "Theoretical Kinematics" published in 1875. Only two of our textbooks have got beyond that date, and that only to the extent of including Gruebler's further developments of 1883-85.

The primary aim was then, and still is in this country, the analysis of already existing mechanisms. But, to be really useful, the science must help in the creation of new mechanisms, of new automatic devices for accomplishing particular purposes, Prof. de Jonge pointed out.

At present, the engineer or machine

designer, called upon to produce the proper mechanism for accomplishing a new task, is obliged to resort to a trial-and-error process, aided only by such knowledge and experience as he has gained since leaving his alma mater. "Yet, to his credit, it may be said that, by his ingenuity, or intuition, he frequently arrives at suitable solutions by such a process," Prof. de Jonge said.

Practical use of the theory of mechanisms requires application of the projective geometry. This subject has been dropped from our college courses. It should be reinstated, Prof. de Jonge declared emphatically. Our whole instruction in kinematics should be reorganized and brought up to date by inclusion of the great advances made in Europe and especially in Germany since 1875. And further research is needed because, even in Germany, the science is still incomplete and has been stagnant for some years past. This should be done quickly and with courage if it is to be in time to be of value in the present emergency, he concluded.

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## NUTRITION—ECONOMICS

## U. S. Finds New Source of Fish Oil Vitamins in Peru

THE United States can have a new source of needed vitamins from fish oils and Peruvians can improve their diet, if Peru's wealth of fish is made the basis of an expanding fishing industry, it is revealed by a survey made by three U. S. Government experts.

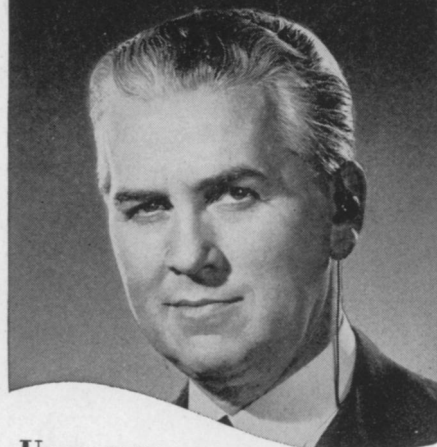
Chartering a purse seiner, the Federal fishery specialists sailed their boat through Peruvian waters, trying experimental fishing with nets, trawls and harpoons, and visiting Peru's fish markets on land. A survey of Venezuela's fishing possibilities is expected to follow, and plans are being studied to survey the whole sweep of Latin American waters from the Caribbean to Cape Horn, with cooperation of countries concerned.

Peru financed virtually all of the expedition's cost, and purchased the exploring fishing boat at the end of the project.

Peru has about 100 varieties of fish used for food, the United States scientists learned, and 60 or more are common in certain markets there. But, while rail facilities for shipping fresh fish inland are adequate from the port of Mollendo and the inland cities would like fish, relatively little sea food is being shipped there and prices in some cases are higher than meat per pound.

As a source of protein, mineral and vitamin ration, fish are pronounced an industry worth expansion in Peru. The United States scientists who made the survey are specialists in fishing problems from varied angles, including marketing, canning, smoking and freezing. They are R. H. Fiedler, Chief of the Fish and Wild Life Service's division of fishery industries, Norman D. Jarvis, technologist, and Milton J. Lobell, biologist.

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Tuna, bonito, and other fish found in the Peruvian waters are pronounced a valuable source of fish liver oils for export trade. Cut off from European sources of vitamin-bearing fish oils, the United States could absorb large quantities of these products for human consumption and for livestock, and there is considered a possibility that the American republics could build up a post-war trade in world markets.

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## METALLURGY

## "Stainless" Silverware By Plating With Alloy

**S**ILVER plated ware, ordinarily very susceptible to tarnish because of its high purity, can now be made "stainless."

It is done by plating with a tarnish resisting alloy, instead of with pure silver. James Ryder, of Denver, Colorado, who has received patent 2,259,270, invented a special electrolytic bath containing silver fluoride, compounds of tin and of uranium, and non-metallic substances to aid the process, in stated amounts.

The inventor states that his method produces a brilliant plate that requires no polishing or burnishing. He says that he has subjected it to every sort of food and food acid and to all types of sulfur-containing products, egg yoke, rubber, etc., without any trace of tarnish appearing.

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### Children of New Skies

**A**MERICANS are what they are largely because of the American climate. It is enough like the climate of Europe to enable European settlers in the new land to live and work. It is sufficiently different to necessitate changes, sometimes quite radical changes, in ways of living and working.

This is one point developed in *Climate and Man*, the 1941 yearbook issued by the U. S. Department of Agriculture (*Reviewed, SNL, this issue.*) Following the practice of recent years, the entire book is devoted to a single subject, this time climate, with chapters written by various specialists, and the whole "sym-

posed" under the general editorship of Gove Hambidge.

The first-settled region in what is now the United States was the humid East. Here the climate was most nearly similar to that of Europe. Yet even here they felt the differences sharply. "This was indeed a lustier land to which the settlers had come," writes Dr. Carl O. Sauer, who contributes this section, "a land of hotter summers and colder winters, of brighter and hotter sun and more tempestuous rain, a land suited to and provided with a greater variety of vegetation than the homelands of Europe."

As the descendants of the original settlers, with later-coming immigrants, surged over the eastern mountains and occupied the central valley, then in turn conquered the farther wildernesses of Western plains, desert plateaus and at last the Pacific slope, they met other new climates, most of them with even more violent contrasts than those their forebears had known in the East. The changeable climate of the Plains, for example, is likened by Dr. C. Warren Thornthwaite to a woman—all smiles one moment, a termagant the next. Men have responded to such temperamental weather as they would respond to temperamental wives, neither wholly yielding nor wholly defying, but adapting. And thus they have been molded into a new people—Americans.

The yearbook as a whole is divided into five sections: climate as a world influence, climate and agricultural settlement, climate and the farmer, the scientific approach to weather and climate, and climatic data, with special reference to agriculture in the United States.

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