SCIENCE NEWS

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ANNUAL REPORT OF THE SECRETARY OF AGRICULTURE

"THERE is no room in the Western Hemisphere for any notions about racial superiority." This counter challenge is thrown into the faces of "New Order" race dogmatists by Henry A. Wallace, now vice-president of the United States, in the midst of the biological and economic discussions that occupy his last annual report as Secretary of Agriculture. Speaking with the authority of his first-hand knowledge of genetics, which had gained him recognition before he entered into public life, he lashes unsparingly at doctrines that would rearrange the world on a master-and-slave basis:

"Theories of racial superiority and racial inferiority have no scientific basis. Certain nations may be very different by training from other nations; by inheritance they are probably little different. Millions living in Germany are different from us chiefly because of an indoctrination systematically instilled into them from early youth. They have had more training in hard work, in giving their all to the fatherland, and in submission to economic and military rule. Many of them believe war is holy and think the achievement of German domination justifies any means. But if numerous American children had been adopted into German families twenty years ago, they would be just the same. They would be indistinguishable from native-born Germans. Probably any favorably located race can develop a civilization. The Indians of Latin America did so. Civilizations of long ago in Africa, China, Japan and India were not inferior in many respects to those of to-day. In this hemisphere, broadly speaking, we have democratic types of civilization, and they rest on a genetic basis."

In the report, much emphasis is placed on the necessity for adjusting American agricultural production to the existing market. Pre-war measures taken by practically all the nations anticipating the outbreak of hostilities had sharply diminished our old export markets, especially for wheat, cotton and tobacco, and the events of the war have cut still further into possible outlets for those crops. On the other hand, home markets for such things as meats, dairy products, fruits and vegetables are steadily improving.

In the presence of this situation, Mr. Wallace points out, "Growing unneeded crops is sheer waste of labor, of capital and of soil, even if temporarily the products can go into storage under government loans. It is a drain on resources that would otherwise be available for national defense."

Better trade relations with other Western Hemisphere nations are recommended in the report. Obviously, the United States can not import from South America commodities of which it already has surpluses, like Argentine wheat or Brazilian cotton; for these, joint effort in seeking sales outlets would seem to promise more satisfactory results. In the meantime, there is plenty of room in United States markets for a whole array of products whose very names suggest the exotic: abaca, cinchona, kapok, rotenone, tea, cocoa, camphor, rubber, tropical hardwoods. Most of the North American demand for these things is now supplied from the Old-World tropics; and even so, that demand should be capable of considerable further growth.

MYTHS OF NORDIC SUPERIORITY

MYTHS of "Nordic superiority" fare ill at the hands of Dr. Aleš Hrdlička, the physical anthropologist of the Smithsonian Institution, who has just completed a study of the heads of one hundred and fifty of America's leading scientific men. Far from being long-headed blonds, this group of outstanding American scientists tend to be wide-headed and their hair (so far as they have any left) is decidedly dark.

The group included in the study were chosen from the membership of the National Academy of Sciences. This body, sometimes referred to as the Senate of American science, elects to its membership only persons of proved accomplishment and reputation in the various fields of science. Naturally, most of its membership is middle-aged and elderly—few men less than fifty years old are elected.

The high average age of the members accounts in part for the predominantly dark hair color. Every one's hair grows darker as he grows older. It also explains the qualification of his statement, that a high proportion of the academy members have (or had) dark hair.

Fifty members of the group studied were of foreign birth or immigrant ancestry. The remaining one hundred were "Old Americans," that is, of families who have been three generations or longer in this country. These "Old American" scientists tend to have larger and wider heads and darker hair than the average of "Old American" men in the general population. They also have decidedly less prominent cheekbones.

Another myth that suffers from this study is that of the "highbrow." Eminent scientific men don't average more prominent foreheads than do other men, the measurements show. Neither do scientific leaders have massive heads on stoop-shouldered, pindling bodies: the general physique is full-grown and sturdy. This, it is pointed out, is largely a matter of nutrition. Men with their brains and training get good jobs and keep them.

Seven per cent. of the group have decidedly back-sloping foreheads—another traditional "sure sign" of inferior intellect. This has nothing to do with the brain content of the skull. A sloping forehead is usually due to larger-than-ordinary sinuses over the eyebrows, giving a wider base rather than a narrower top. Even when the slope is due to other causes, however, it does not necessarily mean any inferiority of the brain.

One member of the academy has the head of a Stone Age man. This does not mean, however, that he is a beetle-browed Neanderthaler—far from it. His head is like that of the Aurignacian people, who left remarkable

paintings and sculpture in the caves of southern Europe. Aurignacian men had larger heads and bigger brains than moderns. The type still crops up occasionally in Scandinavia and among certain groups of American Indians. They may be considered a survival of, or perhaps a reversion to, the earlier type of our common ancestry.

REPORT OF THE U. S. BUREAU OF PLANT INDUSTRY

ABILITY of the United States to get along on its own, or to replace former dependence on the Old World by mutual aid between peoples of the Western Hemisphere, is emphasized in the annual report of the Bureau of Plant Industry to the Secretary of Agriculture.

An outstanding influence of such intra-hemisphere aid is the announcement that new kinds of wheat from Brazil are showing high resistance to leaf rust and some degree of resistance to stem rust as well. These wheats are being used as breeding stocks in producing rust-resistant wheats for growing in the Southwest.

The Biblical maxim that "man shall not live by bread alone" receives practical exemplification in the production of new, American-produced Easter lily bulbs, to replace the stocks heretofore imported from Japan. The new American lilies can be grown so far out of season that they can be brought into bloom for use at Thanksgiving time as well as at Easter.

Possible plant sources of poison for insects that eat other plants are being investigated by the bureau. Most promising are new strains of the rustic tobacco plant (*Nicotiana rustica*) which produce several times more nicotine than is obtainable from ordinary tobacco. Another is the native seashore plant known as devil's shoestring, which yields rotenone, at present extracted from East Indian derris and South American cube.

Further declaration of independence of foreign sources is proclaimed in such diverse fields as fertilizers, sugar-beet seed and tung oil. Magnesium for mixed fertilizers used to be imported from Germany; chemists of the bureau have shown how to use an American magnesium compound with satisfactory results. For potato fields, domestic muriate of potash is shown to be a good substitute for imported (and more expensive) potassium sulfate.

During the last war, the American beet-sugar industry found itself in a bad way for lack of foreign-grown beet seed, on which it had become dependent. The Bureau of Plant Industry insisted on the development of an American source of seed, and sugar-beet growers have reason now to be glad they did.

Efforts to grow the Chinese trees that yield tung oil have run into some difficulties because of their sensitiveness to cold. This, the report states, is mitigated when the trees are in a fully dormant state at the onset of the cold wave.

Cold-resistance seems to be possible also in the tropical Hevea rubber trees that have been the subject of breeding experiments at the bureau's experimental farm at Coconut Grove, Florida. So well have Hevea trees thriven there that the bureau scientists have been able to pull a coals-to-Newcastle stunt—they have sent some of the seeds grown there for planting in tropical American countries.

WILDLIFE CONSERVATION

WILD animals that live in the woods don't like their woods too complete. Not the "deep tangled wildwood" of oldtime poetic fancy, but a mixture of old and young trees, full-grown timber and open spaces with plenty of brush, makes up the ideal forest from the wildlife standpoint, Ira N. Gabrielson, chief of the U. S. Fish and Wildlife Service, points out in a new book, "Wildlife Conservation," off the presses recently (Macmillan).

This seeming paradox is easy to explain. Tall trees in completely closed ranks, such as one finds in a mature virgin forest, bear their leafy canopy high in air, where not even a giraffe, let alone a deer or moose, can browse on the foliage. Furthermore, the tops are so tightly interlaced that very little light can seep through to support a ground population of herbs and shrubs that would afford food to game birds or mammals.

The ideal situation, where profitable timber yield and support of wildlife are sought simultaneouly, can be achieved either by selective cutting, where only chosen trees, ripe for the ax, are taken out each year, or by clean cutting of quite small blocks of timber distributed through the forest. Either method provides a constant succession of well-scattered spots where young trees and underbrush provide browse and shelter. The Forest Service even instructs its men not to plant in certain limited acreages that appear to be more useful as homes for wildlife than as fields for future crops of timber.

Mr. Gabrielson of course does not confine his attention to problems of wildlife in the forest. His book is a comprehensive and well-balanced study of what is to be done with America's outdoor resources—grasslands, deserts, mountains, streams and lakes, as well as woods. He reviews abuses of the past, and tells how they can best be remedied—are already being remedied in many places.

It isn't just a matter of providing picnic grounds for vacationers, game to hunt and fish to catch for sportsmen. There are potential cold cash values of major proportions in wildlife restoration. The raw fur take in the United States was once worth a hundred million dollars a year. What the meat might have been worth, in the days of game abundance, there is no way of estimating. But if we could restore even a fraction of the venison and wildfowl and fish that the early settlers knew— and wasted—there can be no doubt that there would be eager and profitable markets for them.

RARE ACIDS

THE European war has caused a spurt in the production of rare amino acids at the University of California at Los Angeles, according to Dr. Max Dunn, associate professor of chemistry.

Dr. Dunn operates a non-profit company, Amino Acids Manufacture, with the assistance of M. J. Stoddard. The company, formed by Dr. Dunn in 1935 shortly after he first began his study and found that only a few of the twenty-three acids were produced, is one of the three organizations of its kind in the United States.

Since then Dr. Dunn has been able to produce nearly all the acids, and he sells these to laboratories and medical clinics all over the world.

The chemist knows amino acids as constituents of proteins but in appearance they look like bath salts crystals. They are manufactured from a variety of substances such as glue, human hair, dried cottage cheese, dried blood, etc. Some of them are so difficult to produce that they sell for $1,000 a pound—worth twice their weight in gold. The acids, which seldom occur free in nature, make up the protein of man's hair, skin and fingernails.

"Amino acids are no longer coming through from Germany and Switzerland," said Dr. Dunn, "and we are getting about twice as many orders as before the war."

Amino acids are used for a number of purposes. One kind is used as a flavoring for soups and gravies and has a surprising meat-like taste. Other types of amino acids are used in medical research on baldness, cancer and muscular diseases. Amino acids are already used in treatment of such disorders as gastric ulcers and muscular ailments.

SYNTHETIC RUBBER

THAT synthetic rubber can not "be universally substituted for the natural product," was reported to the Society of Automotive Engineers by L. B. Sebrell and R. P. Dinsmore, of the Goodyear Tire and Rubber Company. It is, they stated, "a material having special properties which, when properly handled, will give improved results as compared with natural rubber. On the other hand, we should look upon it as a material whose development and perfection will liberate us from the threat of embargo of natural rubber during the time of national emergency and as a guarantee that the price of the natural product will never again reach the peaks which have characterized it in the past."

Although synthetic rubbers possess elasticity and resilience, they differ considerably in molecular makeup, and it ought not to be expected that they will process just the same way as natural rubber. This study is limited to synthetic rubbers capable of vulcanization.

By far the most serious aspect of the successful use of these rubbers is their difficult processability. For severe service in tire treads, certain synthetic rubbers were recommended by the authors, who added that they can not, at present, be expected to equal natural rubber. None of the synthetic rubbers is the equal of natural rubber in rebound. Synthetic rubber can not be substituted for natural rubber on a quantitative basis or on an equal cost basis without examining carefully the physical properties which are to result from such a procedure. There are also encountered various difficulties in substituting synthetic rubber for natural rubber. Typical compounding results for several vulcanizable synthetic rubbers in two different formulas were given, as were tabular data on dynamic tests.

ITEMS

THE first American commercially built electron microscope—an instrument capable of magnifying 100,000 times—is now in use at Stamford, Conn. Constructed by the RCA Research Laboratories in Camden, N. J., the new super-microscope, which takes pictures with electrons instead of light waves, is in the laboratories of the American Cyanamid Company. Already used in studying pigments for the paper industry, it has shown that the very minute particles have the same crystalline structure as the larger ones observed with old type microscopes, disproving a widely held theory.

PREVENTABLE accidents in industry cause the loss of 2,000 eyes and more than $50,000,000 yearly, Dr. Thomas D. Allen, of Rush Medical College, Chicago, stated at the closing session of the third annual Congress on Industrial Health, sponsored by the American Medical Association. The $50,000,000 loss does not include such indirect losses as subsequent reduction in earning power of the worker with impaired vision. These losses, Dr. Allen and Dr. Henry F. Carman, of San Francisco, estimate, are probably four times as great as the direct loss. Besides the 2,000 eyes that are completely lost each year in preventable industrial accidents, there are 300,000 eye accidents which incapacitate the worker for one day or more. Suitable goggles are the best means of protection, Dr. Allen said, because about 80 per cent. of all industrial accidents involving the eyes are due to flying bodies.

A MOSQUITO species hitherto known only from Panama has appeared on the coast near Brownsville, Texas. Dr. Frank W. Fish, of the University of California, who has made a study of the insect's peculiar habits, conjectures that it may have traveled to its new home by plane. Fortunately for human beings, the invader is exceedingly retiring, does not bite man and is not known to carry any disease. Its larvae or "wigglers" live in the holes made in the beach by the innumerable fiddler crabs that swarm along the Gulf shores. The adults prefer to feed on cold-blooded animals, and mate in confined spaces. The insect is known to entomologists by the technical name *Deinocerites spanius*.

A NEW instrument for telling in advance of treatment whether the eyes of a cross-eyed person can be straightened to work together as a seeing unit was announced by Dr. J. F. Neumueller, director of the Bureau of Visual Science of the American Optical Company. The instrument gives the diagnosis in half a minute. The test with this instrument is based on the phenomenon of the after-image and on the fact that normal eyes can definitely locate objects in space. If the eyes and brain are unable to do this, as determined by the after-image test, normal visual functioning can not be restored. The after-image tester consists of a glass tube containing an electric wire. The current is switched on and as the wire glows the patient looks through one eye only at a red dot on the center of the tube. The tube is then turned from its horizontal position to a vertical position and the patient looks at the red spot through his other eye. Then the light is turned off and the patient, both eyes now open, looks at a fairly bright wall. Soon he notices two dark lines, the negative after-images. If these two lines form a cross, his cross-eyes can be successfully treated. But if the two lines do not meet, chances of restoring binocular vision are said to be remote.