SCIENCE NEWS

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HOMES FOR FAMILIES OF LOW INCOME

THE United States lags far behind European countries in providing sanitary, healthy homes for low income families, according to Professor C.-E. A. Winslow, professor of public health at Yale University School of Medicine, who spoke before the American Public Health Association at their meeting in New Orleans on October 15.

Professor Winslow has just returned from a survey of European housing progress. He stated that "The housing of the poor in the United States to-day is at a lower level than that which obtains in any of the leading countries of Western Europe." He urged public health officers to take up the fight for "decent hygienic housing for the American people." He called this new problem the "most important and most challenging" which health authorities have yet been called upon to face.

Endless statistics, he said, show the relation between bad housing and high death rates. Especially significant are the studies made in Liverpool, England, where populations of similar income levels living in slums and in corporation tenements were contrasted. These studies showed that better housing was associated with lower death rates for infants and for tuberculosis and for all causes.

Public health, however, is not satisfied merely with lowering death rates, Professor Winslow pointed out. Health means much more than just staying alive, and that is another reason why health officers must fight for better housing. "Neither physical nor mental health nor fulness of living is possible where a whole family is crowded into a single room of a city tenement or struggles for survival in an insanitary shack on an Appalachian mountainside." Health officers must no longer be content to condemn insanitary buildings and have them destroyed. They must work for the construction of healthy homes which poor people can afford without having to cut down on their food budget.

Professor Winslow said that the new federal agencies, such as the PWA and the Resettlement Administration and others which have in recent years tackled the problem, have "scarcely scratched the surface." "To meet this urgent problem in anything like an adequate manner," he said, "we must have a permanent federal agency for housing and a unified national policy, such as is proposed in the Housing Bill introduced by Senator Robert F. Wagner at the last session of the Congress, which has the support of all competent experts in the field."

When such a policy is adopted, those in charge of the housing program will need the aid of hygienists because the problem is fundamentally one of health needs. He called on those working in public health to be ready to meet this problem as they have in the past met problems such as tuberculosis control, provision of pure milk and safe water and effective health administration.

HOPE FOR CONQUEST OF NEW DISEASES

PREVENTION or control of diseases like infantile paralysis, influenza, and others caused by viruses, may soon be achieved as a result of recent research. This optimistic opinion was expressed by Dr. Ernest W. Goodpasture, of Vanderbilt University Medical School, at the meeting of the American Public Health Association.

"It is not too much to expect very soon," he said, "th introduction into practical prevention of new and mor effective methods of control of this great group of in fective disorders."

Dr. Goodpasture used as an example of these newe r methods the alum-picric acid spray for the prevention of infantile paralysis which was tried out on a large sc ale during the outbreak of the disease in Tennessee, Alaba ma and Mississippi this summer. How effective this na sal spray is can not be told at present, but the method is a step in the right direction. He explained that virus diseases can not be fought in the same way as diseases caused by bacteria, such as typhoid fever and diphtheria. Investigators have been able to fight such diseases successfully by sending reenforcements to the body's own disease fighters, the antibodies produced by body cells in response to bacterial invasion. This is the strategy of vaccination, serum treatments and the like. The fight against virus diseases will have to be advanced by chemical warfare.

The reason is that the virus takes a different line of attack from bacteria. The viruses, whether they are living or not, can only multiply and cause disease when they get inside the cells of the body. This is true of some bacteria, but many of them can live and multiply as well between the cells as inside them. Many viruses, in addition to requiring the environment within the cells for multiplication, have a special predilection for nerve cells. This means that in the cases of infantile paralysis, for instance, the virus enters the nerve cells without ever coming in contact with the fluid between the cells that contains the body's disease-fighting antibodies.

This is where the chemical warfare may prove effective. The alum-picric acid spray is designed to create a barrier through which the virus can not pass into the nerve cells. Another piece of chemical strategy suggested by Dr. Goodpasture would be to inject into the body chemicals that would make the nerve cells unsuitable for the growth of viruses once they got in.

JANE STAFFORD

LIFE GIVEN TO MUSEUM GROUPS OF BIRDS

BIRDS and beasts in museums need no longer stand silent and still, as if suddenly frozen in their otherwise lifelike attitudes. Using a unique combination of sound films and ingeniously contrived electrically driven mechanisms, Professor A. A. Allen, of Cornell University, has built two bird groups that sing and go through natural, lifelike movements. Before the meeting of the American

Ornithological Union in Pittsburgh, on October 15, he told how he "brings 'em back to life."

One of his new groups shows a nesting scene of a pair of ruffed grouse in a realistically constructed bit of New York woodland. You turn the switch, the strutting male moves his head and utters his characteristic hissing note, while the female moves to her nest and covers her eggs. In the trees and bushes near-by, thrushes and a song sparrow break into song, an owl hoots, a pileated woodpecker calls out and ducks into his hole and a flicker hrows chips of wood out of a nest he is chiseling into a ree trunk. Overhead, a wedge of wild geese honks as t flies away.

Even more striking is the group of ivory-billed woodpeckers, a Southern species now almost extinct. On a recent expedition into the Gulf Coast region, Professor Allen got sound movies of this bird. But because of its great scarcity, it is now an ornithological mortal sin to shoot even a single specimen. However, there was a way out. Professor Allen found a pair of specimens collected many years ago, and mounted in the awkward fashion typical of "stuffed" birds of the mid-Victorian era. He softened up these skins, re-mounted them in the new type of display background and combined them with the new sound effects.

These long-dead woodpeckers now call out with the voices of their remote grandchildren! Even should this species now unfortunately pass completely out of existence, it will be possible for many years for students and bird lovers to watch them in their natural behavior and hear their voices.

Sounds from earth's silent continent, Antarctica, greeted the students of bird life as the opening session got under way. One of the features of the day's program was a sound motion picture of the bird life of Little America, taken by scientists accompanying the Second Byrd Antarctic Expedition.

Only eight kinds of birds starred in this talkie, or per- more accurately "squawkie"—for flute-like notes are conspicuously absent, in Antarctica. That is all there are—only eight species of birds. They include of course the inevitable penguins, and the rest are all fishermen in feathers, too. The sound camera caught them all, and to-day they performed and "sang" for an American scientific audience.

In marked contrast to the stark bleakness of the Ultimate South, with its small bird fauna, was the record brought back from New Guinea by Dr. Ernst Mayr, of the American Museum of Natural History. Dr. Mayr's record was also in motion pictures, but they displayed some of the richest, greenest tropical forests in the world, populated with birds of even greater variety and richer coloring than the leaves and flowers of the trees themselves.

FRANK THONE

USEFUL FARM WASTES

CHEMISTS will turn millions of tons of waste farm products into useful materials for industry that will put additional cash money into farmers' pocketbooks, Dr. Henry G. Knight, chief of the U. S. Department of Agriculture's Bureau of Chemistry and Soils, predicted on October 12 before the opening session of the Southern Chemurgic Conference meeting in Lafayette, La., provided they are given the opportunity to conduct the necessary research.

Dr. Knight pointed to millions of dollars added to the agricultural income through science-taught utilization of lemon and orange culls, cotton seed, sweet potatoes and naval stores, such as rosin. "The total production of cellulose on all the farms of the country amounts to something like 100 million tons a year," Dr. Knight explained. "Its utilization in the form of paper, building board, insulating material and absorbent material, as well as its conversion into foods, drugs, paints, varnishes, lacquers, dyes and cosmetics is an inviting field of research that many chemists would like to explore if they had the money and time."

Every pound of grain means one to two and one half pounds of stalks and husks as by-products, while cotton, rice, peanuts and sirup also mean stalks, husks and hulls upon which farmers have expended soil fertility, labor and capital, he said. The old method of using stalks, hulls and culls for livestock feed and building up soil fertility does not provide a cash income for the farmer and for that reason processing of farm wastes into products of cash value is very desirable.

The hundred million tons of cellulose are only part of the chemical constituents of farm by-products. Southern stalks and hulls are about 40 per cent. cellulose, 30 per cent. lignin and 30 per cent. semi-cellulose. Use of starch as a fuel for running automobiles and other engines was hinted by Dr. Knight in discussing the research undertaken by the U. S. Department of Agriculture, which has made possible the conversion of sweet potatoes into a high grade starch for textile use. Germany has already demonstrated starch as auto fuel. Referring to recent estimates that the world's oil supply would probably be exhausted in another 20 years, Dr. Knight said: "What seems impossible to-day often becomes a reality to-morrow, especially in times of war and other emergencies, and it is well for us to work out these chemical problems as we can and keep them on record for the future if they are not practical under existing conditions."

WATSON DAVIS

TRAFFIC SAFETY ON HIGHWAYS

MODERN highway engineers are yet unable to build an absolutely safe and fool-proof road, but that much can be done to build safety into highways was pointed out by Walter V. Buck before the meeting, on October 15 in Pittsburgh, of the American Society of Civil Engineers. Mr. Buck is senior highway engineer of the U. S. Bureau of Public Roads, Columbus, Ohio.

Improved motor design, said Mr. Buck, has increased the confidence of the user in higher speeds and on the highways, as in other forms of transport, the speeds of travel are steadily increasing. You can not stop this speed trend by ignoring it in road design, Mr. Buck intimated, nor can acceptance of the fact be considered an encouragement of speeding. Rather the plan should be

to use the fact of increased speed in future highway designs. Curves should be banked to take speedy vehicles and too much bank is less objectionable to a slow driver than is a curve with too little bank dangerous to a fast driver. While a fast car on a low-banked curve may not run off the curve, the driver may have to go into the oncoming lanes to negotiate the bend, with all its accompanying hazard to traffic safety.

With modern private cars grades no longer have their former major importance, but where a highway has much truck travel the problem of traffic jams behind a slow-moving commercial vehicle is a serious menace.

Little appreciated by the layman, Mr. Buck indicated, is the importance of adequate sight distance on a highway. Sight distance is the length of road which can be clearly seen by a driver at any time and is the distance which allows the driver to determine when and where to pass the vehicle ahead of time. For two-lane and four-lane roads, recommended Mr. Buck, 1,000-foot sight distance is needed. For the more dangerous three-lane highway, 1,500 feet should be in view wherever possible. Each lane on a road should be 10 feet wide, but because most motorists will not drive over near the road edge 11 feet is much to be preferred.

In the vicinity of schools and public buildings near villages and cities surfaced sidewalks should be provided for pedestrians. It should be clearly recognized that the ordinary individual will walk on a dangerous paved highway rather than on a loosely graveled walk.

Improper sight distance on a highway makes the motorist drive "blind" as he would at night with poor headlights, said H. D. Barnes, State Highway Engineer of Topeka, Kans., in discussing Mr. Buck's report. Too much emphasis on the need for a 1,000-foot sight distance can not be made. Three-lane roads are based on a theory which is completely erroneous, for head-on collisions are invited on such roads. The trouble is that each driver who cuts out into the center lane to pass another car feels that he has a right to that area.

Mr. Barnes suggested that even on a two-lane highway a low and smooth central raised portion would help separate the two streams of traffic. Such a central raised part would not prevent cars from passing, but would encourage cars to stay in their own lanes at all other times.

ITEMS

OAT hulls and other farm wastes may in future yield powerful antiseptics for use in medicine and for combating plant diseases, as they already supply industry with materials for making plastic products such as steering wheels, radio panels and electric insulators. Drs. N. M. Phatak and C. D. Leake, of the University of California Medical School, have combined furan, an oat-hull derivative, with mercury in various ways, producing a number of promising germ-killing compounds. In dilutions one part of antiseptic in from 15,000 to 30,000 parts of water, they killed test cultures of colon bacilli and the yellow germs that cause boils.

THE Hungary correspondent has reported to the American Chemical Society a new patent wherein the seeds of valuable plants can be separated from weeds by magnetic attraction. Separating the seeds of plantain from the valuable ones of Trifolium is an example. A mixture of magnesium or calcium chloride, calcium oxide and iron powder are dusted over the mixed seeds. The chemical agents are adsorbed on the plantain seeds and they are attracted to magnets. Thus the Trifolium seeds are left alone.

A NEW cellulose enamel is on the market in Germany under the trade name of "Emailliola" which is said to be insoluble in water, benzine, benzol, alcohol, turpentine and acetone, according to the report of Trade Commissioner R. M. Stephenson, at Berlin, to the Department of Commerce. The material is highly resistant to weathering, acids, alkalies and mechanical rubbing. It is noninflammable and can be applied to wood, paper, pulp, cellulose, metals, glass, tile, stone and plaster.

ONE gallon per hour is the water loss of a medium size Anjou pear tree during a hot night. In the day's warmer hours, the loss may mount to eight gallons an hour. These figures are announced by the U. S. Department of Agriculture in connection with a warning that Anjou pear trees showing the effects of water shortage will need thinning both as to fruit and also leaves. The medium size tree has more than 1,000 square feet of leaf area, counting the upper surface of the leaf only.

PLANTS had their troubles in the days of the dinosaurs no less than to-day, a fossil fungus disease described by Drs. M. A. Chrysler and C. M. Haenseler shows. Leaves of a cycad found in a lignite formation of an ancient New Jersey bog were found infested with the feeding threads of the parasitic plant, which could be clearly seen and photographed in microscopic section The find, which dates from the Cretaceous period a hundred million years ago, is described and pictured in the *American Journal of Botany.*

THE secret of why the picric acid-sodium alum nasal spray can protect monkeys and, perhaps, human children against infantile paralysis lies in its ability to coagulate protein, just as acid curdles milk. Experiments showing that it is probably this coagulation process which gives the spray its effectiveness are described by Drs. Charles Armstrong and W. T. Harrison, of the U. S. Public Health Service, National Institute of Health, in the current issue of *Public Health Reports.* The membranes that line the nose and the mucous secretions that coat these membranes are protein in character. The spray presumably coagulates these proteins, making a tough coating something like the clot of well curdled milk or like hard cooked egg white. The infantile paralysis virus, it is thought, can not get through this coating and so can not reach the olfactory nerve by means of which it ordinarily reaches the nerve centers where it does its damage.