AERONAUTICS

Scientists Devise Formula For Recovery From Spins

A SIMPLE formula which enables a designer to calculate in advance, within half an hour, whether his projected airplane will come out of a tail-spin safely and quickly has been developed by two scientists at the Langley Memorial Aeronautical Laboratory, the National Advisory Committee for Aeronautics, operators of the laboratory, announced.

If adopted by the aviation industry generally, it will simplify the task of building safer light airplanes, for tail-spins have figured prominently on the roll of accident causes among private flyers and, not so prominently, in other types of flying.

Responsible for the new formula, known as the "tail damping-power factor," are Oscar Seidman and Charles J. Donlan.

The chief requirement, in general, for an airplane that can be pulled out of a spin quickly is enough rudder that is not cut off from the air stream by the horizontal tail surfaces—in other words, enough rudder to give the pilot control at all times. In all but the flattest spins, the portion of the rudder above the horizontal tail surfaces is blocked off. Hence, the two N.A.C.A. men indicate, the need is to have a sufficient amount of rudder below the horizontal tail surfaces. Their formula shows how much is needed for an airplane of any given size or weight, with the exception of unconventional models, whose behavior cannot be so easily predicted in advance because they are unconventional.

Science News Letter, June 17, 1939

GENERAL SCIENCE

Science Called Upon To Justify Its Function

A HUNDRED or even 50 years ago to ask "What is the social function of science?" would have seemed "a strange, almost meaningless question even to the scientist himself, far more so to the administrator or the plain citizen." Prof. J. D. Bernal, brilliant young physicist of the University of London's Birkbeck College, writing in his *The Social Function of Science* (Macmillan) observes that there could then be no doubt that science's practical activities were the main basis of progress.

Now the picture is very different, he says, and the troubles of our times seem themselves to be a consequence of that very progress.

"The new methods of production which science has brought into being lead to unemployment and glut without serving to relieve the poverty and want which are as widespread in the world as ever before," Prof. Bernal writes. "At the same time, the weapons devised by the application of science have made warfare a far more immediate and more terrible risk, and have diminished almost to the vanishing point that personal security which was one of the chief triumphs of civilization.

"Of course, all these evils and disharmonies cannot be blamed exclusively on science, but there is no denying that they would not occur in their present form if it had not been for science, and for that reason the value of science to civilization has been and is being called into question."

This is what Prof. Bernal sets out to do with considerable thoroughness, assaying what science does and what it could do. Science itself seems in danger for the first time since the Renaissance, due to the disturbed state of the world and the universal preparations for a general and terrible world war. Prof. Bernal finds the whole sweep of science difficult to survey, reporting that no one knows how many scientists there are in any country, except perhaps in the U.S.S.R. What they are doing should be ascertainable from the 30,000 odd scientific periodicals published, but nowhere, says Prof. Bernal, is it possible to find how and why they do it.

Science News Letter, June 17, 1939

MEDICINE

Sulfanilamide Treatment Forestalls Mastoiditis

THE NEW DRUG, sulfanilamide, has extended its sphere of usefulness to cover otitis media, that extremely painful disease of the middle ear that often is the forerunner of a mastoid operation.

Eighty-eight patients with otitis media due to beta hemolytic streptococcus were given sulfanilamide in a recent series of cases and only seven required a mastoid operation, reports Dr. Gilbert E. Fisher of Baltimore. (*Journal, American Medical Association,* June 3)

In a control group of 95 patients who were given the regular treatment of puncturing the membrane for drainage and irrigation, 66 required a mastoid operation.

Moreover, the patients treated with sulfanilamide recovered in one-third the time taken by the other group.

Science News Letter, June 17, 1939

IN SCIENC

ASTRONOMY

Astronomers Forecast Next Sunspot Cycle For 1944

THE next outburst of sunspots should occur early in 1944 and the next maximum of sunspots should come in the summer of 1948, it is forecast by Princeton University Observatory astronomers, Prof. John Q. Stewart and Forrest C. Eggleston.

Communicating their forecasts in a letter to the editor of the *Physical Review,* the Princeton scientists note that since 1749 A.D. sixteen sunspot cycles have been completed. The 17th outburst, they add, is not yet complete.

The next outburst, number 18, may be expected to commence roughly two-thirds of a year after the sunspot number has fallen to one tenth its maximum value. This places the date early in 1944.

The new forecast is made by fitting curves to the graphs made in plotting the number of sunspots monthly.

Science News Letter, June 17, 1939

ENGINEERING

With Cool Water Available Homes Can Be Conditioned

SUMMER cooling of homes by water from city water mains is feasible if the water temperature does not exceed 58 degrees Fahrenheit, according to findings of research scientists at the University of Illinois Engineering Experiment station.

The method is adaptable for homes having forced air heating systems. In the cooling technique pipes bearing cool water are placed within the air ducts and air forced over them.

When water temperatures are above 58 degrees Fahrenheit, so much water must be moved and pumped that it is cheaper to use mechanical refrigeration for the cooling, say the scientists.

Since water at 58 degrees is the limitation the method is not usually adaptable for homes south of a line passing through Missouri and Kentucky, state Profs. A. P. Kratz, M. K. Fahnestock, Seichi Konzo and E. L. Broderick who made the study.

Science News Letter, June 17, 1939

E FIELDS

PUBLIC HEALTH

Danger of Polio Epidemic This Summer Is Slight

AN INFANTILE paralysis outbreak this summer is very unlikely to occur, health authorities believe on the basis of reports to the U. S. Public Health Service for the season's critical week.

For the week ending June 3, reports of new cases in 27 states already heard from totaled only 18. If an epidemic were in sight, signs of it would be expected in the reports for that week.

Reports from Charleston, where there has been an outbreak of the crippling, paralyzing ailment, show a decrease. There were only three cases in the city and seven brought into the city hospital from the surrounding county.

Smallpox, in spite of the outbreak in Onondaga County Penitentiary, N. Y., shows signs of a decrease. With 20 cases from New York counted in, the total from 27 states was only 96 for the week ending June 3. Reports from Tennessee have not yet been received, however, and health authorities are somewhat concerned over what they will show, since there has been an outbreak of this disease in White County, Tenn., with about 150 cases reported so far.

The two smallpox outbreaks are unusual in occurring at this time because smallpox used to be considered a cold weather disease.

Science News Letter, June 17, 1939

ENGINEERING

British Escape Device Resembles U. S. Navy's Lung

BRITISH sailors rescued from the sunken submarine Thetis and six who escaped from the Poseidon seven years ago in the Yellow Sea off China's coast used a "lung" essentially similar in its design and operation to the U. S. Navy's "lung" which did not have to be used to save men from the Squalus.

Only the use of a mask fitting over the face and goggles over the eyes and the elimination of the nose clip distinguish the Davis lung, as the British device is known, from the Momsen lung. The Momsen lung is patented in England in the name of the three Navy men who developed it, Comdr. C. B. Momsen, O. B. Tibbals and Frank M. Hobson.

But the British have nothing equivalent to the diving bell that did yeoman work in the Squalus rescue, although its plans have been available to all comers ever since it was devised.

France, which likewise lacks the diving bell, has just taken steps to acquire it, it was reported also. Plans of the bell and detailed instructions in its use have been furnished the French naval attache. Equipment of foreign navies with the bell would require alterations of their submarines to provide hull fittings for its use. This will be a drydock job, although it would be neither long nor difficult in the case of most submarines.

Science News Letter, June 17, 1939

ASTRONOMY

New-Found Comet May Mean Meteor Shower Aug. 4

THE POSSIBILITY of a meteor shower in the early morning of Aug. 4, due to the earth coming within 3,000,000 miles of the orbit of the bright Comet 1939 d which was recently visible, is reported by Dr. V. Guth of the National Observatory at Prague. Particles moving in the same orbit as the comet but lagging behind it by 154 days might collide with the earth and show up as a "shooting star shower."

While a watch for meteors at that time will be kept by astronomers and amateurs throughout the world, a study made by Dr. Fletcher Watson of Harvard College Observatory indicates that the earth will not be likely to encounter a sufficient density of particles to provide a meteor shower. For one thing, on Aug. 4, when the earth reaches the vicinity of the comet's path, the comet will be twice as far on the other side of the sun as the earth is on its side of the sun. Experience shows that comets that cause intense meteor showers take relatively short times to make their journey around the sun and back to the earth's neighborhood. The period of this year's brightest comet is known to be long, probably greater than a hundred years and possibly thousands of years.

At first called the Hassel comet after the first discoverer to make known his observations, comet 1939 d is now known as the Jurlof - Achmarof - Hassel - Smith comet after four astronomers who spotted it almost simultaneously.

Science News Letter, June 17, 1939

ENTOMOLOGY

Fire Ants Destroy Quail; U. S. Aid Is Asked

GOVERNMENT entomologists have been called in to help save quail from serious menace by fire ants. Thousands of acres of land owned or leased for game preservation under the auspices of the Cooperative Quail Study Association in Florida, Alabama, Mississippi, Georgia and South Carolina are infested with these predacious ants that swarm into the quail nests as soon as the shells are pipped. The young birds are destroyed before they can get out of the shell and the mother quail is forced to start over, laying a new clutch of eggs, only to have the process repeated.

Since 1927, some circumstances of favorable environment, probably light rainfall, has caused such an increase in the numbers of fire ants, which do damage to citrus trees as well as to ground nesting birds, that a project has been initiated for the investigation of the problem by entomologists of the Federal government. According to Dr. Bernard V. Travis of the U. S. Bureau of Entomology and Plant Quarantine, the methods of underground migration peculiar to these ants make it extremely difficult to obtain accurate information about their behavior, necessary before effective control methods can be developed. Killing the mother queen ant, sodium cyanide soil fumigation, and poisoned baits have met with only partial success so far.

Science News Letter, June 17, 1939

GENETICS

Bureau of Human Heredity Established in England

A NEW organization for the study of the human race, the Bureau of Human Heredity, has been established in London (*Human Biology,* June). The bureau is directed by a council representing medical and scientific bodies in Great Britain.

Dr. R. Ruggles Gates, chairman of the council, writes that they will be grateful to receive "all available material from institutions and individuals, furnishing well-authenticated data on the transmission of human traits whatever these may be. . . . Material should be given with all available details in regard to source, diagnostic symptoms and the name and address of the person or persons who vouch for accuracy. All such details will be regarded as strictly confidential."

Science News Letter, June 17, 1939