

PHYSICS

First Electron Microscope Fellowship Goes to Anderson

FIRST award of the R. C. A. electron microscope fellowship has just been made to Dr. Thomas F. Anderson of the California Institute of Technology. Dr. Anderson will work at Camden, N. J., with the newly evolved supermagnification instruments, that use streams of electrons instead of beams of light, producing magnifications as great as 100,000 diameters, as contrasted with 2,500 diameters, utmost performance of ordinary-type microscopes even when ultraviolet light is used.

Dr. Anderson, a native of Wisconsin, has studied at the University of Wisconsin and the University of Chicago, and in addition to his work at the California Institute of Technology had one year of graduate work at Munich, Germany, some years before the present war.

Science News Letter, November 23, 1940

MEDICINE

Draft Examination Follows NRC Recommendations

THE medical tests which men whose numbers were called in the October 16 draft must pass before being accepted for Army training are based on recommendations made to the Army by a committee of medical authorities summoned for the job by the National Research Council, it was made known by a report from the committee on information of the Council's division of medical sciences.

All summer, the committee on medicine, under the chairmanship of Dr. Russell M. Wilder, of the Mayo Clinic, worked over the Army regulation on "Standards of Physical Examination during Mobilization," so that the standards used this fall for America's new draft Army embody the latest medical knowledge of what constitutes fitness for Army service.

Red tape apparently has been eliminated by simplifying and clarifying the directions to examining physicians and by leaving much more to their discretion and medical judgment when it comes to deciding on the seriousness of defects or ailments found in the men being examined.

Use of small-size X-ray films in examination of lungs for signs of tuberculosis, to be made if possible on all men selected for training, is another procedure the Army has adopted on the recom-

mendation of one of the National Research Council special committees.

Physicians and surgeons who will treat sick or wounded men will have for their guidance new manuals prepared for medical officers of the Army and Navy by other special committees of medical and surgical authorities.

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PUBLIC HEALTH

Medical Ambassador Arrives From England

THE MAN who might now be called America's medical ambassador, Dr. John F. Fulton, of Yale University School of Medicine, has arrived from England via clipper with vital information for the physicians and surgeons in charge of America's medical defense preparations.

Dr. Fulton was met by Dr. Lewis H. Weed, chairman of the medical sciences division of the National Research Council which has mobilized the medical authorities of the nation for defense, and Dr. Morris Fishbein, Editor of the *Journal of the American Medical Association*. Dr. Fishbein is chairman, and Dr. Fulton a member, of the committee on information of the National Research Council's medical defense set-up.

English military and civilian medical authorities, it is understood, gave Dr. Fulton full information on what they are doing and have found most effective in treating war wounds and protecting the health of both fighting forces and civilians during the war. The information Dr. Fulton has brought back with him was considered so vital to America's plans for defense that arrangements were made, it is understood, to facilitate his speedy return much as if he had been on a military or naval mission.

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INVENTION

Tires Can Be Changed With Flick of Finger

FINGER TIP tire changing, according to the inventor, is possible with a new invention. (*Ralph D. Yankee, Kansas City, Mo.*). The wheel is made in halves, like two pie plates with their bottoms together. To change a tire, it is deflated, a flick of the finger releases the two halves, and it is quickly removed. The new tire is placed on the half that has been removed, it is held against the other half, and another finger-flick clamps the two together, so the tire is ready for use.

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IN SCIEN

INVENTION

Pneumatic Fenders Proof Against Being Dented

AUTOMOBILE fenders made of material similar to the tires and inflated are a recent invention. Being soft and resilient, they are not permanently dented when one runs into another car or a wall, yet they will still give protection for dirt thrown from the wheels. (*Clauss Burkart Strauch, Milwaukee, Wisc.*)

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ENTOMOLOGY

Pollen and Soybean Flour Winter Food for Bees

ANCIENT China's "honorable little bean," the soybean, is finding new use among Wisconsin's 15,000 commercial beekeepers. By mixing soybean flour with pollen the bee men have produced a bee bread for emergency feeding when supplies of natural bee bread, required for winter sustenance, run short.

The recipe for this synthetic bee food, developed at the Wisconsin Agricultural Experiment Station, calls for one part of pollen to three parts of soybean flour. However, like the famous recipe for rabbit stew, you must first catch your pollen.

To accomplish that the college scientists have perfected a pollen trap for use on the hives. Made of hardware cloth with five wires to the inch, this consists of two screens placed half an inch apart, in such a way that the bees must pass between them to get into the hive. Most of the pollen which has adhered to their legs during their nectar-hunting forays on the flowers will be brushed off by the hardware cloth and collected in a tray below. After being air-dried, it is stored for future use.

On "baking day" the correct proportions of pollen and soybean flour are mixed into a thick paste, with sugar syrup added to obtain a proper consistency. Since this bread sours or molds readily, each batch is made only large enough to last a week. About half a pound of the paste is given each colony, at weekly intervals.

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CE FIELDS

PHYSICS

Atom-Smashing Machine Building for Notre Dame

AN ATOM smashing machine with a capacity of 8,000,000 volts is being constructed by the University of Notre Dame on its campus at South Bend, Ind. This capacity is nearly twice as large as any electrostatic generator now in existence, University officials announced.

The new machine will be in charge of George B. Collins and Bernard Waldman, who operate the school's present 1,800,000-volt device, and John T. Ferguson, who designed it.

The new generator will be enclosed in a 20-ton steel tank 40 feet long and 8 feet in diameter capable of holding an air pressure eight times that of the atmosphere. One section is mounted on street car wheels, so that it can be pulled apart to make the machinery accessible. It is controlled from a room separated from it by a five-foot wall, through which it can be watched by means of a peep hole made of sewer pipe enclosed with glass and filled with water.

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PHYSIOLOGY

Sex Control By Chemicals 'Not Proven' in Experiments

SEX CONTROL in unborn offspring by means of alkaline and acid solutions has met the Scotch verdict of "not proven" in experiments performed at the University of Wisconsin by Prof. L. J. Cole, R. M. Shackelford and Emanuel Waletzky. Their results agree with those obtained at another state university, disagree with those reported from a third university and from a commercial laboratory in the East. However, the research groups at all four institutions are in agreement on the one practical point, that the method is not to be recommended as dependable for use on farms at present.

The tests were started after sensational claims were made in an Eastern newspaper, to the effect that if impregnation took place in an alkaline medium the resultant offspring would be predominantly male, and that the opposite

sex would appear in the offspring if the impregnation were "acidified." Published results claimed birth ratios as high as 4 to 1 in favor of the theory.

Using lactic acid as the "female" control and bicarbonate of soda as the alkalizing chemical supposed to produce males, the three University of Wisconsin scientists treated young female rats and rabbit does just before mating. Regardless of the chemical douche used, the ratio of males and females among the 1,746 rat and 286 rabbit offspring came very close to the immemorial 50-50 of uncontrolled nature.

And so the scientists shake their heads and say, "Not proven. More experiments are needed."

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MEDICINE

Blood Preserved With Sugar Keeps in Banks for 30 Days

BLOOD for transfusions to save lives of the war wounded or of the civilian sick can be preserved with sugar and used satisfactorily after storage in blood banks for at least 30 days, Dr. R. O. Muether and Dr. K. R. Andrews, of the St. Louis University Hospital Group, reported to the Southern Medical Association meeting in Louisville.

The blood preserving solution these doctors use contains both sugar and sodium citrate. The latter chemical alone will preserve blood for a few days, which may be all that is necessary in large hospitals. In smaller institutions, however, the sugar plus citrate preserving solution is distinctly worthwhile, the St. Louis doctors declared.

Neither blood plasma nor blood serum is an entirely satisfactory substitute for whole blood, these doctors maintain. The fact that they can be used to some extent instead of whole blood for transfusions should not, Drs. Muether and Andrews believe, keep scientists from seeking still better ways of preserving whole blood for war and other uses.

New use for blood plasma, which is the fluid part of the blood, was suggested. It can not only serve as a partial substitute for whole blood for transfusions but can serve as a substitute for protein for patients too sick to eat meat or otherwise unable to obtain protein from their diet. This use of plasma has only just been started by the St. Louis doctors but they reported good results in five patients and urged other physicians to investigate the matter further.

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ENGINEERING

Light Diesel Engines Seen as Defense Aid

DIESEL ENGINES, which in 1926 weighed as much as 267 pounds per horsepower, are now made as light as ten pounds per horsepower, H. C. Mougey, of the General Motors Corporation, told members of the Division of Refining of the American Petroleum Institute.

"If it should be desirable for special purposes such as national defense to decrease these weights," he said, "it should be possible to develop diesels of large power output with weights as low as three pounds per horsepower."

Lubricating oils for automobile engines are having to meet much more severe demands than a few years ago, on account of the progress that has been made in engines, fuels and roads, he stated.

Declaring that the cost of an automobile and the cost of the petroleum products to operate it are approximately the same, he said that the oil and automotive industries "constitute a kind of Siamese twins, and the well being of each industry very closely is bound up with that of the other."

Tests made in the laboratory with straight mineral oil, using extra large filters, showed that the same oil could be used for many hundreds of hours with no appreciable effect on the oil, pistons, rings or bearing. Such filtering, however, is not practicable in normal use.

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GEOLOGY

Glacier on Mount Rainier On Way to Extinction

MOUNT Rainier's family of glaciers will soon number only 27 members instead of the present 28. Stevens Glacier, near Paradise Glacier, has diminished to a thin piece of ice about a quarter of a mile long, separated by about 200 yards from the main ice body of the mountain's cap.

Perishing of Stevens Glacier is laid to two principal factors: less than two-thirds of a normal snowfall last winter, and mean temperatures averaging 18% above average during the past year.

Other glaciers on Mount Rainier have shown quite irregular behavior during the current season, some of them receding more than their normal average, others considerably less.

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