

## PHYSIOLOGY

**Baldness, Not Hairiness,  
Real Sign of Masculinity**

**B**ALDHEADED men, cheer up! Baldness, rather than extreme hairiness, is the real sign of masculinity, at least after the earliest years are over, according to findings of research presented before the meeting of the American Association of Anatomists, by Dr. James B. Hamilton of Yale University School of Medicine.

Dr. Hamilton studied baldness in a large group of men who had failed to mature sexually or who had been rendered sexless in accidents or by unavoidable surgery. In the group of 54 permanently immature cases, not one bald head appeared. They also had less dandruff than normal males.

Male sex hormone was given medicinally to some of these sexually deficient men. They promptly began to lose hair and develop dandruff. In two cases the treatment was discontinued for a time, whereupon the loss of hair ceased, only to begin again when treatment was resumed.

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## NUTRITION

**More Fat Needed in Diet;  
Necessary to Vital Parts**

**P**REDICTION that both man and his domestic animals are going to suffer from the present trend toward non-fatty diets was made by Dr. G. O. Burr of the University of Minnesota, at the meeting of the Federation of American Societies for experimental Biology, Boston.

Latest discoveries show that fats do more than supply energy. They contain substances, the fatty acids, needed for the health of many vital parts of the body such as the kidneys, reproductive organs and skin. These fatty acids serve as essential building stones of the body.

One of them, linoleic acid which gets its name from linseed oil, is especially important to the health of the skin, Dr. Burr declared. Physicians have already applied this discovery with success in treatment of some skin disorders. Babies with intractable eczema and grown-ups who have "never had a clear skin since they could remember" have been cured of their skin trouble by doses of linseed oil or by diets that supply plenty of this fatty acid through butter, lard and salad oils.

This treatment will not cure every case of skin trouble, Dr. Burr warned,

because not all cases are necessarily due to lack of linoleic acid in the diet. He thinks, however, that the average diet contains too much starchy and sweet food and not enough fat of the kind that supplies linoleic acid. The skin effects of lack of this acid, he said, become especially noticeable when humidity is low, as in heated houses, or when some of the vitamin B complex is also missing or scanty in the diet. Common diets contain only about 5% of their calories in fat. This is much too low, Dr. Burr said.

The Army tries to give the soldiers 25% to 30% of their calories in fat. This is equivalent to about 15% of the day's food by weight. Civilians may not need this much, but probably need more than they usually get.

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## METEOROLOGY

**Smithsonian Instruments  
Measure Moisture in Air**

**A**IR over desert mountains is often as arid as the land beneath it. Studies by Dr. Charles G. Abbot, secretary of the Smithsonian Institution, show that if all the moisture in the air above Montezuma, Chile, were to be brought down in a sudden shower, the rain-gauges there would show a precipitation of less than a hundredth of an inch. Precipitable water in the atmosphere over Washington, D. C., during summer may amount to the equivalent of an inch of rain.

The Smithsonian Institution maintains observatories in many parts of the world, and most of these are still operating despite the disturbances and perils of war. Information on amounts of water in the air is obtained as a by-product of research on total solar radiation reaching the earth. Instruments at the observatories, read several times a day, yield the moisture data because water vapor in the air cuts off certain parts of the solar spectrum.

Studies of these radiation data, as they vary before and after storms, indicate that the water that falls as rain or snow is not imported from long distances, but is gathered up in immediately surrounding regions. Also, the indications are that a rain or snow storm is not long in "gathering"; the moisture is precipitated in a relatively short time, often leaving the air over a given region considerably drier than it was before the storm.

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**IN SCIENCE**

## NUTRITION

**Shark Livers Promise  
New Vitamin Supply**

**T**HERE will be plenty of vitamins for babies in Australia even if the reported mass drive to the altar by American soldiers and Aussie lasses causes a sharp uptrend in the continent's birth rate.

The Australian News and Information Bureau reports that a new process discovered by an Australian firm will guarantee ample supplies of shark liver oil, rich in vitamins needed by infants.

Eighteen months ago when vitamin oil imports from Newfoundland and Great Britain were plentiful, the shark livers were discarded. Today they are the center of a new industry promising to keep infants healthy and fishermen employed. Fish liver oils are rich in vitamins A and D.

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## NUTRITION

**Extra B Vitamins  
Would Help Brain Workers**

**B**RAIN WORKERS apparently would be able to do more and perhaps better work, or at least could do their regular work with less fatigue, if they increased their daily ration of B vitamins above the amount required by the average healthy person. Those who perform physical work, however, need not expect any increase in muscular strength or endurance or any lessening of muscular fatigue through taking extra amounts of B vitamins.

These are the conclusions of studies reported by Dr. Ernst Simonson, Dr. Albert Baer and Dr. Norbert Enzer, of Milwaukee.

The Milwaukee scientists gave a large surplus of the vitamin B complex to 12 healthy persons and compared them with 11 people on an ordinary diet. The extra vitamin ration had no detectable effect on any type of muscular activity, neither endurance, recovery, speed, force nor fatigue, but it did prevent fatigue of the central nervous system, which includes the brain.

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# CE FIELDS

## PHYSIOLOGY

### New Navy Goggles Help Night-Duty Pilots

**P**LASTIC polaroid goggles which help a pilot's eyes get used to the dark have been perfected for the Navy by the Medical Research Section of the Navy's Bureau of Aeronautics.

The goggles are equipped with a special lens with red filter bonded between two layers of the plastic which allows very little light to stimulate the portion of the eye's retina used in seeing in the dark. Without light, that part of the retina becomes adapted to the dark almost as quickly as though in complete darkness. The goggles permit the rest of the eye to see.

Ordinarily, pilots on night duty either begin their watch "blind" or spend 20 to 30 minutes in a dark room to get used to the dark. By using the new goggles, a pilot may remain in a lighted room until ready to go on duty.

The goggles can be made in mass quantities at one-sixth the cost of present-type goggles, which require expensive materials. Three types of interchangeable lenses are available; one permits dark adaptation, a second, a green polarizing filter eliminates glare, and the third is standard clear lens for wind protection. A shipment of the new goggles has been made to England to permit tests by pilots.

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## CHEMISTRY—RESOURCES

### Wood Pulp Supplementing Cotton in Explosives

**T**O PROVIDE explosives needed to hurl death at the Japs and the Nazis, pulp mills throughout the nation have been converted from their peace-time roles to produce cellulose.

Cellulose, the basic ingredient of many high explosives, is ordinarily produced from the short fibers of cotton, the purest natural form of the substance. War demands are so great, however, that another source, wood, is being called upon.

America's experience in World War I showed that forests could furnish the

harmless-looking stuff that booms lethal shells at the enemy. There have been developments during the Armistice years and now B. W. Scribner, chief of the paper section of the National Bureau of Standards, declares that the cellulose obtained from pulpwood "approaches in chemical purity that taken from cotton."

Germany, a nation which must drain the value of every resource, has long been aware of this. Forest products powered her big guns in 1914-1918 and they are furnishing her with explosives today. In fact, some experts believe that Hitler's drive into Norway was made principally to add the store of the Scandinavian forests to his own scanty pulpwood supply.

Fortunately, the United States need never fear running short of explosives. We have the forests, with scientific harvesting methods guaranteeing a never-failing supply of pulpwood, and we have the mills which can be easily adapted to turning that wood into cellulose.

Mills which have turned their facilities over to making this raw material for destruction are guarding their formulas closely. Generally, however, the wood is "cooked" by ordinary sulphite process for making pulp. It then passes through several cycles of chlorine bleaching and is finally subjected to treatment with caustic soda. When finally refined to what is practically pure cellulose, it is turned over to explosives plants for nitration. Cellulose plus nitric acid is cellulose nitrate—gun cotton.

The species of wood used varies according to the location of the mill. In the Northeast, it's spruce; in the West, it's hemlock; in the South, they use Southern pine.

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## ENTOMOLOGY

### Autogiros Found Practical In Spraying of Forests

**A**UTOGIROS, those quizzical aerial flivvers which hover over the earth like hummingbirds, may one day replace ground machinery in spraying forests.

Department of Agriculture foresters have just completed demonstrations of the spraying of insect-killing arsenicals over woodlands to preserve timber. They said the autogiro-sprayers can be operated so cheaply that it will pay to protect a forest on the basis of the value of a threatened stand of timber rather than on the additional threat of spread to and destruction of forests in nearby areas.

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## CHEMISTRY

### Meat-Tenderizing Factor Of Pineapple Extracted

**A** NEW progress whereby the meat-tenderizing factor of raw pineapple may be cheaply obtained has been discovered by the U. S. Department of Agriculture. It has long been known that raw pineapple juice will make tough meat cuts tender, due to the presence of an enzyme called bromelin which breaks down the meat protein.

In cooperation with the Hawaiian Agricultural Experiment station, the Department has developed a method of obtaining bromelin from the peels and cores of pineapples. The bromelin is precipitated with alcohol from juice pressed from the peels and cores in a stage of manufacture where the juice is of little value to the canner. The alcohol may be recovered to be used again with more juice.

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## GEOPHYSICS

### Vital Parts of Alaskan Defense Area Photomapped

**U**SING airplanes in every possible way, a geographic expedition explored, photographed and mapped a vital part of the Alaskan defense area in the region of Mt. Hayes last summer in a fourth of the time and at a third of the cost that would have been required by older methods. At the meeting of the American Geophysical Union in Washington, Dr. Bradford Washburn of the New England Museum of Natural History, leader of the party, told his audience how the work was done, and showed them superb color motion pictures of some of the beauty-spots of the country traversed.

Dr. Washburn took his party in by leased planes, with parachutes loaned by the Army. All supplies were parachuted to the men on the ground, and two-way radio communication was constantly maintained with the main base. Work that would have required three months by former methods was finished in three weeks.

A thousand square miles were covered by aerial photographs. This included some areas that were practically unknown and hitherto entirely unmapped because so inaccessible. Mt. Hayes, a rugged, 13,740-foot peak, lies 90 miles southeast of Fairbanks, and is 40 miles from the nearest passable road.

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