

NUTRITION

Normal Babies' Diets Have Sufficient Vitamin B₁₂

➤ **BABIES** ON a mother's or cow's milk diet get enough vitamin B₁₂ and folic acid, so for normal infants there is no need to add either of these substances to the diet.

This advice was presented in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (July 14) as an authorized report of the Association's Council on Foods and Nutrition.

Babies "being fed artificially with cow's milk formulas would receive as much vitamin B₁₂ and folic acid as the breast-fed infant, because these formulas usually contain 50% to 70% cow's milk," the report states.

If the baby does have a deficiency of either this vitamin or folic acid, it is more likely to result from abnormalities within the individual child rather than from the lack of adequate intake.

Recent studies have shown that vitamin B₁₂-antibiotic combinations fed to poultry and swine produce spectacular spurts in the animal's growth. Using either B₁₂ or folic acid to speed up the normal growth of healthy babies should be approached with a cautious attitude, and studies reporting improved growth from these supplements "will have to be appraised critically."

That vitamin requirements are interrelated was noted by the report in discussing the role of ascorbic acid in the requirement of folic acid.

"When adequate ascorbic acid is available," the report states, "the normal infant's need for folic acid appears to be satisfied by the small amounts normally present in milk."

The report recommends careful studies of growth in order to learn more about vitamin B₁₂ and folic acid deficiencies.

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PUBLIC HEALTH

Vacation First Aid: Artificial Respiration

➤ **IF SWIMMING**, fishing and boating are on your vacation schedule, you want to be prepared to give artificial respiration in case of a drowning accident. New methods such as the hip lift and hip roll have been developed but for the average untrained person, the prone-pressure method is considered the easiest and best. Here are directions for it:

1. Lay the patient on his belly, one arm extended directly overhead, the other arm bent at elbow with the face turned outward and resting on hand or forearm. Nose and mouth must be free for breathing.

2. Kneel straddling the patient's thighs with your knees at such a distance from his hip bones as will allow you to place your hands as follows: Palms of your hands

on the small of the patient's back, fingers resting on the ribs, little fingers just touching the lowest ribs. Thumbs and fingers should be in a natural position with the tips of the fingers just out of sight.

3. With your arms straight, swing forward slowly so that the weight of your body is gradually brought to bear on the patient. Your shoulder should be directly over the heel of your hand at the end of the forward swing. Do not bend your elbows. This forward swing should take about two seconds.

4. Immediately swing backward so as to remove the pressure completely.

5. After two seconds, swing forward again. Repeat deliberately 12 to 15 times a minute the double movement of compression and release.

6. Continue artificial respiration without interruption until natural breathing is restored or until a physician pronounces the patient dead. You may have to continue it for four hours or longer.

7. As soon as artificial respiration has been started and while it is being continued, have an assistant loosen any tight clothing about the patient's neck, chest and waist.

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AERONAUTICS

Large-Size Helicopter, Jet Powered, May Serve England

➤ **JET-PROPELLED**, 100-passenger helicopters are proposed in England, and design studies have been prepared by several firms, it was revealed in London. The jets would be positioned at the tips of the blades. Gas-turbine builders are planning to adapt their engines for the proposed aircraft.

England is going for helicopters in a big way. The Korean experience has proven their value in military operations. But in this populous country is a definite thought that the helicopter is particularly suitable on short-haul routes for passengers. These include both hops between nearby centers and feeder routes from outlying points to airports for long-distance transports.

Five of the 20 main British aircraft manufacturers are now building or planning to build helicopters. One has announced plans for a machine with three large or six small jet engines. It would be capable of carrying 100 fully equipped troops. It would weigh 80,000 pounds, and its rotor blades would span 110 feet.

Another manufacturer has begun preliminary development work on a helicopter driven by two gas turbines. It is a 23-seater, with a cruising speed of 134 miles per hour. A notable feature is the proposed position for the engines. They would be outside the fuselage, not inside as in all present helicopters. The air jet will flow out to the tips of the rotor blades.

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IN SCIENCE

PHYSICS

Sonar Reveals Bedrock Along Chicago Waterfront

➤ **CHICAGO NOW** knows how deep the bedrock lies along its waterfront, and, consequently, how deep to put a tunnel for a new water distribution system.

Sonar, the naval guide to the sea's bottom and to enemy submarines, told city engineers and the U. S. Geological Survey these facts. Sonar replaced the lengthy and costly method of taking innumerable rock borings along the proposed route of the tunnel.

The Geological Survey, in announcing completion of the project, said this method of mapping the depth of bedrock was developed for the Chicago project and had never been used before.

Sonar was not only able to reveal the depth to the top of the mud and gravel layers just beneath the water, but also the depth of the bedrock below the mud and gravel. A sound signal was given off by the sonar which bounced off both the bottom and the bedrock and was recorded in the Chicago city tug used for the survey.

The distribution tunnel, which will connect with a new filtration plant—the whole to cost \$85,000,000—is planned to go 50 feet below the top of the bedrock to avoid seeping in of water or mud.

The survey found two hidden valleys which will make it necessary to place the tunnel deeper than had previously been contemplated.

Equipment came from the U. S. Navy Bureau of Ships, Electronics Division.

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TECHNOLOGY

Punch-Press Spreads Metal Like Butter for Plane Parts

➤ **METALS FOR** airplane parts are spread like butter by the heavy blows of a punch-press.

The so-called impact extrusion process, by which soft metals are forced into desired shapes, was adapted by the Lockheed Aircraft Corporation of Burbank, Calif., to tough aluminum alloys.

Engineers of the company have designed a 1,000-ton impact extrusion punch-press for the purpose. It will produce parts measuring up to 12 square inches in cross section and 24 inches in length. Use of the method will greatly decrease cost of the parts. Parts produced by impact extrusion are stronger than similar parts machined from castings on a lathe or drill press.

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E FIELDS

NUTRITION

Cow Eats 7½ Hour Day; Grass-Milk Ratio: 2½ to 1

► WHEN SHE'S working at top efficiency, Old Bossy turns grass into milk at the ratio of two and one-half to one.

Scientists of the University of California Agricultural Extension Service, Davis, Calif., report these figures on nature's four-footed milk-producing machine.

A cow eats about 125 pounds of five-inch-high forage a day—enough to produce 50 pounds of 3.5% milk. But where the grass is two to three inches high, she eats only 45 pounds a day.

Bossy grazes approximately seven and a half hours daily, regardless of how much feed she gets. She does 60% of her grazing during daylight hours and 40% at night, with 50 to 70 bites a minute. On the average, she chews her cud seven hours a day and spends 12 hours lying down, at nine different times. While grazing, she travels two and a half miles in the daytime and one and a half at night. She drinks 10 times a day.

If a cow chews her cud lying down, it does not necessarily mean that her appetite is satisfied. Unless she is given other feed, she has to get along on what she eats in seven and a half hours of grazing, whether she eats 40 pounds or 125 pounds.

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ENGINEERING

Reflected Electric Pulses Locate Faults in Power Line

► TROUBLES TO transmission that develop in power and other electric lines are being located from terminal stations by means of electric pulses sent out along the wire which are reflected back by any fault encountered on the line.

The instrument used is called the Linascope, and was developed by the research division of the Hydro-Electric Power Commission of Ontario. It was described at the American Institute of Electrical Engineers meeting in Toronto, Canada, by K. H. Kidd of the Commission.

The Linascope locates a fault by measuring the time taken for a short duration electrical pulse to travel along the transmission line to the fault, to be reflected from it, and return to the test terminal, he said. The instrument is about the size of a portable oscilloscope and can be operated from a 115-volt alternating-current supply or from a battery-operated vibrator.

Mr. Kidd also informed the engineers that an automatic fault locator working on the same principle has been developed and is permanently connected to the transmission line. Transient as well as sustained faults are recorded automatically by obtaining the Linascope record while the current is still flowing.

The Linascope is of particular value where transmission lines cross terrain patrolled with difficulty, it was indicated. These troubles in transmission, which engineers call faults, may result from various causes but mostly from weather conditions. Some are caused in winter by sleet and wind, and some in summer due to lightning.

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TECHNOLOGY

Gadget Counts the Shocks Parcel Gets on Journey

► "HANDLE WITH Care," "Fragile," "This End Up."

British post office employees and expressmen are going to take these mottoes seriously when they get wind of a new gadget recently introduced by scientists in London.

The gadget, called a shock counter, measures the number and approximate intensity of shocks received by a package on a road or rail journey. However, its purpose is not to check up on expressmen, but on the efficiency of the packaging materials used.

Designed and used by the British Printing, Packaging and Allied Trades Research Association, the shock counter consists of a flap which moves against a restraining spring when subjected to a shock. It records on a counter. Association officials say there is no precise knowledge of the treatment which a parcel gets on its way to a customer and, therefore, no precise way of telling what the standard of packing should be. It is hoped that the shock counter will throw some light on the subject.

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INVENTION

Elevator Truck Body Has Hydraulic Power

► EASY LOADING and unloading are the advantages of a truck body which can be lowered almost to ground level when desired, and raised to the conventional height when the vehicle is ready for the road. In the preferred form, hydraulic power is employed to lower and raise both ends of this "elevator" body.

The truck can be a front-wheel drive type or the ordinary trailer with front end carried by the tractor unit. Rigid connection is provided between the power or cab section and the platform or body section. Patent 2,560,715 was awarded to Robert O. Bill, San Leandro, Calif., for this invention.

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CHEMISTRY

Canned Meat and Fish Retain Protein Value

► CANNED MEAT or fish contains as many amino acids, the building blocks of proteins, as the fresh product.

Dr. Max S. Dunn, professor of chemistry at the University of California at Los Angeles, has tested 74 specimens of canned meat and fish for amino acid content.

None of the 13 amino acids determined was significantly altered by the heat processing to which the canned samples had been subjected.

Tested were Atlantic mackerel, Atlantic sardines in oil, Pacific sardines in tomato sauce, Atlantic fish flakes (cod and haddock), salmon, spiced ham, whole ham, tuna in oil, beef and shrimp.

Dr. Dunn's experiments at U.C.L.A. were done cooperatively with the University of Wisconsin.

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TECHNOLOGY

New Lubricant Coating Aids Cold Working of Steel

► THE PROCESS of making steel wire or tubing by drawing the cold metal through dies or molds to obtain the desired size and shape is greatly aided by a new lubrication coating announced by the Pennsylvania Salt Manufacturing Company. The same coating is of value also in other steel cold working and cold extrusion operations.

The development is the result of joint research by the Pennsalt Company and the Heintz Manufacturing Company, of Philadelphia. It is based on techniques developed and used in Germany during World War II to produce cartridge cases, gun barrels, airplane parts and other tubular or cylindrical bodies.

The method employed is called the Pennsalt Foscoat Process. It consists of cleaning, pickling and application of a new phosphate coating and specially developed lubricants to steel.

A heat-resistant lubricating surface is formed which is chemically interlocked with the steel. It has exceptional adherence even under severe working conditions.

Foscoat is the name of the specially developed phosphate coating. It can be applied to the steel by immersion, flooding or spraying. Foslobe is the name of the organic lubricant applied to the phosphate coating. It is designed to react chemically with the Foscoat, in addition to being physically absorbed.

The two principal limitations to cold drawing and cold extrusion operations are the lubrication and the ductility of the steel. The lubrication limitation is practically eliminated by the new lubrication film, it is claimed.

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