

MEDICINE

Measure Palsy Shakes Using Electronics

► An "electronic apparatus" for measuring the shakes, or tremors, of shaking palsy and also the rigidity that is a feature of this disease has been developed by Drs. Frederic J. Agate, Jr., and Lewis J. Doshay and F. Kingsbury Curtis of Columbia University and the Neurological Institute of Presbyterian Hospital, New York.

The device measures the torque exerted on the patient's forearm during extension, that is, rotation through 90 degrees about the elbow joint. A ring fitted to the base of the patient's second finger is connected to the device for measuring the tremors.

The device is reported in the *Journal of the American Medical Association* (Feb. 4). It was used to score numerically the results of treatment with the drug, ethopropazine, or Parsidol, in patients with shaking palsy, which doctors call paralysis agitans.

This drug first became generally available to U. S. physicians in 1954. (See SNL, March 6, 1954, p. 147.)

Scores obtained with the drug were compared to scores obtained when the patients were getting a placebo, or dummy medicine. More than half the patients, 55%, showed a reduction in rigidity from the new drug, while 69% showed from 20% to 70% improvement in major and minor tremors.

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MEDICINE

Alcohol Makes Ulcers In Guinea Pigs

► ADVICE to those contemplating a lifetime of heavy drinking: Stick to beer and light wines and don't drink on an empty stomach.

This comes from studies of the stomachs of human alcoholics and of stomachs of guinea pigs. The guinea pigs were given various amounts of alcohol in various concentrations both when fasting and when not fasting.

The studies are reported by Dr. A. Wynn Williams of the University of Edinburgh, Scotland, in *British Medical Journal* (Feb. 4).

Hemorrhages, eroded spots and ulcers were found in the guinea pig stomachs when the animals were given by stomach tube alcoholic solutions of more than 20% concentration.

These included "reputable brands of 'neat' Scotch and Irish whisky or gin." The 20% concentration is equivalent to fortified wines such as sherry and port. Beer and cider, Dr. Williams points out, have an alcohol concentration of five percent to ten percent.

Stomach linings of 25 adult human alcoholics were examined. Of these, the linings were normal in nine with an average age of 38.5 years, mild to moderately severe

inflammatory changes were present in seven whose ages averaged 46 years, and chronic atrophic gastritis was found in six with an average age of 52.5 years.

Hemorrhages were found in the linings of five stomachs and erosions in six. Peptic ulcers were found in six.

The trend toward increasing amount and severity of chronic gastritis with increasing age of the alcoholic patients is significant, Dr. Williams suggests.

A normal appearance of the stomach lining, he reports, "is not infrequently found in alcoholics and the relationship of alcoholism to chronic gastritis is uncertain."

Although there is no proof that alcohol produces peptic ulcers in humans or interferes with their healing, Dr. Williams says it would be "prudent" for ulcer patients to avoid strong alcoholic drinks.

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ELECTRONICS

Predict Stock's Future By Electronic Computer

► WHETHER A STOCK'S VALUE will go up or down in the future is being predicted experimentally by an electronic computer, Dr. Lawrence Rosenfeld of Melpar, Inc., Cambridge, Mass., reported in San Francisco.

The program is so new its success or failure is still to be determined, Dr. Rosenfeld said. If it proves impossible to forecast a stock's future behavior with formulas he is now using, Dr. Rosenfeld said the failure should point the way to a correct solution.

He outlined his methods for determining short-range fluctuations in the stock market at the 1956 Western Joint Computer Conference and Exhibit in San Francisco, noting that it was only one of several types of problems computers could solve.

Dr. Rosenfeld said his predictions were limited to one or two weeks to two months in the future, forecasting a stock's growth or decline without taking into account such long-range factors as the company's strength compared to its competitors.

He is trying to predict the "little peaks" of five percent to ten percent, in order to take a short-term profit when they occur. The method is being tested for about 2,000 stocks on both boards, the New York Stock Exchange and the American Stock Exchange.

If he can work out a way to forecast successfully one stock's fluctuations, Dr. Rosenfeld said, he would be able to tell future trends for all of them.

"Chartists," or persons who plot the opening and closing quotations of stocks, have noted that the daily geometrical patterns they draw seem to indicate future trends. Too many calculations are needed, however, for the chartists to make predictions.

An electronic computer, when properly directed, can make the required calculations, Dr. Rosenfeld said.

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IN SCIEN

GENERAL SCIENCE

Report on Foundations' Support of Research

► LESS THAN FOUR CENTS out of every U. S. philanthropic dollar is spent by the 77 large, privately endowed foundations.

Of \$164,000,000 spent in 1953 by these foundations, only \$26,000,000 was spent for scientific research. This is shown by a survey made by the Russell Sage Foundation for the National Science Foundation and issued recently.

Private foundation expenditures for science are less than one percent of the estimated national total for all research and development. Only 43 out of the 77 major foundations supported scientific research.

Considered an imaginative investment of small sums accomplishes great purposes, Donald Young, Russell Sage Foundation president, commented in the report.

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ORNITHOLOGY

Aussies' Laughing Bird Being Exterminated

► THE LAUGHING JACKASS, or kookaburra, Australia's friendly bird of the bush, is threatened with extermination.

The kookaburra is a protected bird, but many new migrants to Australia do not know it is an offense to kill it.

J. Baker, a delegate at the Australian Teachers Federation Conference in Hobart, Tasmania, said new settlers were killing and eating thousands of kookaburras.

The conference decided to ask the Australian federal government to launch a campaign for the preservation of Australian fauna and flora.

The extraordinary laughing notes of the kookaburra are the most familiar sound in the Australian bush. They may be heard at all times of the day, but especially in the early morning and in the twilight.

Kookaburras are found all over eastern and southern Australia. They are very sociable in their habits and often get together in groups of a dozen.

They live on snakes, insects and carrion. They dive on snakes from gum tree boughs and carry them off in their beaks. They kill the snakes by dropping them from a height or by beating their necks against a tree trunk.

The kookaburra, *Dacelo gigas*, is a member of the kingfisher family.

They are easily made into pets, and laugh at the slightest encouragement of laughter from the human voice.

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CE FIELDS

METALLURGY

Hot Rolling Makes Hafnium Usable

► HAFNIUM, a rare metal similar to titanium and zirconium, can be rolled to any desired thickness if heated to 500 degrees Centigrade, which is 932 degrees Fahrenheit, it has been found at the Missouri School of Mines and Metallurgy, Rolla, Mo.

Use of the metal has been limited heretofore by its tendency to crack when cold-rolled.

Discovered in 1923, hafnium was a chemical curiosity until, as a result of the program to use atomic energy, metals were re-evaluated for their capacities to absorb neutrons. Zirconium has been found suitable for constructing atomic power reactors but hafnium, which occurs with zirconium, has a different ability.

In this respect, U. S. Bureau of Mines scientists are working with Atomic Energy Commission scientists to find uses for the rarer metal, obtained as a by-product of increasing zirconium production.

They furnished samples of hafnium to D. S. Eppelsheimer and D. S. Gould of the School of Mines. The results of the metallurgical experiments, which show hafnium to be corrosion-resistant and to have a high melting point, are reported in *Nature* (Feb. 4).

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GENETICS

No Wholesale Genetic Danger from A-Bomb

► "PROPHECIES of wholesale racial degeneration resulting from experimental atomic explosions" get a big no from Prof. J. B. S. Haldane of University College, London, in *Nature* (Feb. 4).

However, figures suggest "a more serious situation than some physicists have calculated," he warns.

Prof. Haldane's statement answers criticism by Dr. F. W. Spiers of the department of medical physics, University, Leeds, of an earlier statement by Prof. Haldane.

Dr. Spiers questions whether effects of radiation on genetic mutations in fruit flies, *Drosophila*, can be used for calculating radiation effects on human mutations.

He points out that such calculations assume the background dose rates to the reproductive organs of all species are identical. Those organs of the fruit fly are exposed to both beta and gamma rays, he points out, whereas those in most mammals are screened entirely from external beta rays and even partly from gamma rays.

Dr. Spiers particularly objects to Prof. Haldane's earlier statement that most human mutations may be caused by background radiation present in the atmosphere when no nuclear explosions are taking place.

Prof. Haldane still thinks this may be the case. He quotes figures from studies by various scientists of mice as well as fruit flies, which suggest that 30% to 40% of human mutations "might be due to high energy events."

Since these estimates are "extremely uncertain," Prof. Haldane still thinks it not impossible or even very improbable that most human mutations are due to background radiation.

"This hypothesis," he states, "gives an upper limit to the possible harmful effect of induced radioactivity. Even if, as I hope, this limit is too high by a factor of 10 or even 100, it seems worth stating, if only because, while suggesting a more serious situation than some physicists have calculated, it decisively negates prophecies of wholesale racial degeneration resulting from experimental atomic explosions."

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NUTRITION

Potatoes Found Good Food Buy

► BUDGET-CONSCIOUS HOUSEWIVES have long rated potatoes as a good food buy because they help fill hungry stomachs at low cost. The lowly spud, however, is also rated a good food buy by nutritionists.

One medium-sized potato, cooked plain, gives you one-fourth of your daily quota of vitamin C, plus some of the B vitamins, iron and other important minerals.

Potatoes are not only filling. They are a cheap energy food. Penny for penny they are on top of the vegetable list in providing energy-giving food value, U. S. Department of Agriculture nutritionists point out.

Contrary to some belief, potatoes need not be fattening. One medium-sized baked or boiled potato furnishes about 100 calories when served without fat. Of course, putting butter or margarine on a baked potato or gravy on a boiled potato adds calories.

If you are counting calories, watch out for mashed potatoes, since the cook adds milk, sometimes cream and sometimes fat to them. Fried and hash-browned potatoes also have added calories from the fat.

Sometimes when you buy potatoes you will find a green color on some part of the surface. This condition is known as sunburn. Sunburned potatoes usually have a bitter taste making them largely inedible.

If you are going to store potatoes, remember that the late crop ones are best for this purpose. Sort them before you store, setting aside for first use any that might be bruised or cracked. Keep potatoes cool but not cold. Temperatures advised by experts are between 40 degrees and 60 degrees Fahrenheit.

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WILDLIFE

Wildlife Report Shows Americans' Interest Up

► AMERICA'S WILDLIFE refuges were used more during the fiscal year 1955 than at any previous time in history, the U. S. Fish and Wildlife Service states in its annual report.

A record-breaking 5,202,260 persons, armed with either picnic basket, camera, binoculars or hunting and fishing equipment, stalked the 264 National Wildlife Refuges.

"Activities of the Service," it was reported, "ran the scale from demonstrating how to prepare fish for a school lunch menu to managing the big fur seal herd on the Pribilof Islands of Alaska."

Some of the nation's wildlife gave the Service trouble last year, they reported. Efforts were made to control the sea lampreys that are devastating commercial fishing in the Great Lakes; blackbirds greedily feasted away on Arkansas' rice fields; rodents and other animals continued to eat forest seedlings.

In addition, hookworm took an annual toll of 100,000 fur seal pups.

Biological scientists working for the Service last year developed methods of predicting successfully the shad runs in both the Hudson and Connecticut rivers, electrical devices to help salmon over dams without fatal injury were further developed, and salmon were surveyed in thousands of miles of the Pacific to determine their distribution, abundance and identity.

The Service also reported that during the fiscal year 1955 more than 4,000,000 game fish over six inches in length were planted for sportsmen.

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GENERAL SCIENCE

High Science Enrollment In Nation's High Schools

► FIGURES showing that a large percentage of high school students study science have been obtained in a recent survey by the U. S. Office of Education.

They show that 72.6% of the students enrolled in the tenth grade took biology, the year this subject is usually taken.

The survey showed that 31.9% took chemistry in the 11th grade, the usual year for that science, and that 23.5% in the 12th grade took physics.

Actual figures of those taking the subjects based on an extrapolation of a 10% sample of 1954 registrations are biology, 1,293,900; chemistry, 482,700; physics, 302,800.

The survey was conducted by Dr. Kenneth Brown, mathematics specialist in the U. S. Office of Education.

Scientists and educators have been disturbed over the repetitions of statistics dating back to pre-World War II days, which gave a much more gloomy picture.

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