

of proposed dams such as the problem attacked by the Bureau of Standards, but for questions connected with levees, channel straightenings, diversions for industrial purposes, introduction of large sewers and other sudden additions of water, presence and removal of rocks, sandbars and artificial obstacles, and a score of other things that engineers need to know.

A novelty is the "glass river" used at the University of Minnesota. This is a flume with sides of glass instead of wood or metal. This permits the research engineer to study the up-and-down weaving of the currents, as well as their sidewise and eddying motion—a kind of observation not possible either with the

older type of flume or with the rivers themselves.

Abroad, hydraulic laboratories are a story at once old and new. In such countries as France and Germany, engineers had them to work with before they were known in America. On the other hand, they came to Russia only since the Revolution. But Russia is a land of mighty rivers, resembling the United States in that respect at least, and the Soviet engineers are trying to make up for lost time by building the "biggest ever," when they have a hydraulic problem to tackle.

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*Science News Letter, June 12, 1937*

#### MEDICINE

## Little Grains of Starch Stop Growth of Cancer

**A** HINT that starch grains injected into cancerous tumors will stop their growth and in many cases cause them to disappear is contained in one of the 33 cancer researches in America and abroad supported by the International Cancer Research Foundation grants totaling over \$300,000.

This hopeful experiment was made on a mouse tumor by Prof. Robert Chambers and C. G. Grand, of New York University's Department of Biology.

Injections of starch grains "produced a marked infiltration of polymorphonuclear leucocytes into the tumor." Leucocytes or white blood cells are the soldiers of the blood stream that fight invading germs. The accumulation of leucocytes inhibited further growth of the tumor and, in many cases, the tumor disappeared completely. Inert particles, like charcoal, did not produce the effect. So far the method has been applied to mice only.

The ultimate solution of the cancer, "the greatest unsolved problem in medi-

cine today," will come from research by well-trained investigators, said W. H. Donner, president and founder.

"Why is there so little money for cancer research?" asked Mr. Donner. "The answer lies probably in the fact that research appeals only to the intellect. Hospitalization and treatment for the amelioration of suffering make an obvious emotional appeal to a large public; the alleviation of pain is humanitarian, and a necessary function of civilized society.

"The solution of the cancer problem, however, is an intellectual rather than an emotional matter, because it will come from research. Essential though care and treatment are, they can not be of the slightest help in preventing the development of malignant disease in the next sufferer. For him or for her, hope lies in the laboratories."

Human cancer cells and tissues have been kept growing for years in glass dishes and fed artificially, the report of the Johns Hopkins Cancer Research and Tissue Culture Laboratories reveals. The "J. D." human tumor strain has been maintained in pure and continuous tissue culture for 5½ years and an "A. R." strain has existed 4 years. A number of human brain tumors had been cultured for almost a year when the report was submitted.

A new theory of cancer formation is suggested by experiments of Dr. A. Haddow of the University of Edin-

burgh. Chemicals from coal tars produce certain kinds of cancers and the new idea is that these carcinogenic hydrocarbons actually inhibit growth of the cells instead of stimulating them. The cancer is believed to result from the rise of a new cell race that rebels from the prolonged retardation of the growth of normal cells and multiplies rapidly forming the cancer.

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#### PSYCHOLOGY

## Study Debunks Idea That Geniuses Are Born Queer

**I**F MEN of genius are eccentric or insane, it is not because all geniuses are born queer, but possibly because of lack of understanding in their education and family life, Dr. Harvey Zorbaugh, director of the Clinic for the Social Adjustment of the Gifted, New York University, told an audience at the Woods Schools, Langhorne, Pa.

Among a hundred gifted children whose development is being watched at the Clinic, five are so extremely gifted as to be clearly in the class of potential genius. In terms of IQ, these children all score at or above 180; a "normal" score is 100. One child registered 204 on this mental scale; the others were respectively 180, 190, 196 and 200. Such genius is rare, Dr. Zorbaugh said. Probably not more than 24 would be found in all New York's 1,086,416 public school children.

All are well adjusted, socially competent young persons, Dr. Zorbaugh told the Conference on Education and the Exceptional Child meeting at Langhorne.

"In three generations of the five families of these children there is but one relative who may be suspected of a psychotic episode," he said. The mother of one child is eccentric although it has never been necessary to put her in a hospital. All the other relatives seem

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## RADIO

June 15, 4:15 p.m., E.S.T.  
FISHING IN ALASKA—Frank T. Bell,  
Commissioner of Fisheries.

In the Science Service series of radio discussions over the Columbia Broadcasting System.

to be, or to have been, normally adjusted and stable personalities. All the families are long lived and have good health histories.

At present these young prodigies are tall, healthy children ranging in age from five to fifteen—all of them normal mentally, physically and emotionally.

"We cannot predict the futures of these children," Dr. Zorbaugh said. "So far, they and their families have had

careful guidance. The children have all had unusually fortunate educational experiences. If, as they grow older they become unstable, we believe it will be due to the Clinic's inability to control the hazards of development to which such children are exposed. . . .

"If society showed the interest in its children of genius that it shows in its idiots, we might speak more confidently. We spend millions of dollars yearly, for research and education, on our feeble-minded.

"An equal amount invested in our gifted and talented children would yield an immeasurably rich return—in a deeper understanding of the nature of giftedness and talent, in the increased social productivity of the gifted elements of our human population."

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### MEDICINE

## New Human Disease Found; Resembles Rabbit Ailment

A NEW brain disease of man, which closely resembles a disease that attacks rabbits in many parts of America and Europe, was described by Drs. Abner Wolf and David Cowen of New York at the meeting of the American Neurological Association at Atlantic City.

The new disease has the imposing name of granulomatous encephalomyelitis. It is caused by a tiny egg-shaped organism which attacks the brain. The New York doctors reported a case of this disease in an infant born in New York City of American parents and dying at 4 weeks of age with widespread inflammation of the brain, spinal cord and retina of the eye. A similar case has been reported in an infant in Brazil and another in Czecho-Slovakia.

The condition of the infant's brain was much like that seen in rabbits afflicted with a brain disease due to a parasite called *Encephalitozoon cuniculi*, and the germ or organism found in the dead baby's brain was very similar to the one that causes the rabbit disease.

### Insulin Shock Danger

Insulin shock, much heralded treatment for the widespread mental disease, schizophrenia, may itself produce a serious brain disease of another sort, with symptoms like paralysis agitans. Warning of this possibility was given by

Drs. Baldwin L. Keyes, Herbert Freed and Helena E. Riggs of Philadelphia.

Previous warnings on the use of insulin shock treatment for mental disease have had to do with the possibility of the patient dying before he could be given enough sugar to bring him out of the shock.

Serious insulin shock may and sometimes does cause serious brain changes, the Philadelphia doctors asserted. These may result in after-effects like those in some cases of epidemic encephalitis, so-called sleepy sickness. The condition, with its rigid muscles, immobile facial expression, tremors and cramps, is like paralysis agitans.

A case of possible brain hemorrhage following insulin shock, in which the patient was temporarily paralyzed on one side, was also reported by the Philadelphia doctors.

### X-Ray Treatment of Brain

A definite limit to X-ray dosage which can be used safely and effectively in treating brain cancer was set up by Drs. Percival Bailey, J. E. A. O'Connell and A. Brunschwig of Chicago.

"Any result which cannot be obtained by a depth-dose of 4,500 roentgen units," they state, "will not be obtained by higher dosage."

Further dosage, they said, may cause serious brain damage.

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### GENERAL SCIENCE

## Fear World Faces Disaster; Scientists Urged To Rally

SCIENCE is so universally useful that it is nurtured and praised by capitalist and communist, dictator-dominated states and democracies, peace enthusiast and war lord.

Because research and science are used for unsocial purposes so often, the ideal of a "brotherhood of scientists" has fallen into a general decline. In certain sections of the world where thought and truth are strait-jacketed, scientists can not participate in free interchange of opinion.

In this precarious state of the world's intellectual life, the rising tide of concern over the social consequences of science's applications is a hopeful sign. Latest of these efforts to orient and kindle the scientific spirit is the suggestion that the International Council of Scientific Unions take the lead in co-ordinating what has been proposed.

The task is as difficult as it is large. It requires bravery of the first rank and keen appreciation of the complex factors that intertwine governmental and industrial systems. It requires a scientific approach that admits mistake even though that new set of facts may dethrone righteous emotion.

Without the organization of labor and



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