

PHARMACY-PUBLIC HEALTH

Suggest Sterilizing Doctors' Prescriptions

A HEALTH hazard in the germs carried on doctors' prescriptions is reported by Dr. B. Kosowski of Warsaw. (*Pharmaceutical Journal of London*, 1935, p. 135.)

Dr. Kosowski found that there was a marked difference in the dangers, depending upon the kind of paper upon which the prescriptions were written.

Straw cellulose paper carried more germs than wood pulp; paper with gelatin and starch as an ingredient was distinctly favorable to the growth of micro-organisms; but if vegetable mucilage was an ingredient the micro-organisms did not thrive.

He examined 360 prescriptions, which he had collected from various pharmacies in Warsaw and found they were all contaminated with various dangerous organisms. For this reason he considers them a distinct health hazard and suggests that every one should be sterilized when presented to the pharmacist. To facilitate this sterilization he has invented a small machine consisting of two cylinders, which can be heated by electricity to 200-220 degrees Centigrade. The slips are inserted in the rotating apparatus and come out fully sterilized.

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AVIATION

"Silent Siren" Warns Pilot of Fire in Air

FIRE in the air—rare but nevertheless always dreaded by airplane pilots—is immediately detected in any part of a plane during flight by a novel detection system involving the use of a "silent siren" described in a U.S. patent granted to Henry E. Heigis, West Orange, N. J., inventor.

Mounted in its watch-like, glass-covered case on the instrument panel of the plane where the pilot can readily observe it, the siren, which is really a miniature windmill, spins around in a blur of color to give instant, visual, but silent warning in case a fire breaks out. Having a head start on the fire, the pilot can then train extinguishers on the blaze.

The siren spins into action when "heat actuators," valve-like devices placed at points in the plane where fires are most likely to occur, as near the carburetor, oil pump and engine, open

up when heat contacts them. These actuators are connected by a pipe to a nozzle which is directed against the blades of the siren. There is also a second pipe connected to the siren case, which leads to a suction-creating device such as the intake manifold of the airplane engine.

This set-up causes the siren to be under constant suction, but because the heat actuators or valves are normally closed, no air can flow through the system and therefore, the siren does not spin to warn the pilot. In case of fire, on the other hand, the valve nearest the fire opens and air is immediately sucked through it, into the first pipe, then out of the nozzle against the siren blades, spinning them around. The whirling blades catch the eye of the pilot.

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PHYSIOLOGY

Effect of Excitement On the Blood Is Reported

THE SPECIFIC gravity of blood is greater during excitement than when one is calm, and the spleen, a red blood cell factory in the body, is partially responsible, experiments by Drs. L. B. Nice and H. L. Katz, of Ohio State University, show. Specific gravity gives the weight of a unit volume of blood or other fluid compared with the weight of the same unit of water.

The two scientists have been studying the effects of excitement on rabbits and cats. In normal animals the increase in specific gravity of the blood after they had been excited was quite marked, but in rabbits whose spleens had been removed this increase was much smaller.

The experimenters ascribe their results to the removal of water by body tissues from the blood, the addition to the blood of the waste products of the animal's speeded-up life processes, and, most important, the actual contraction of the spleen to force red blood cells into the blood stream.

Since the red blood corpuscles carry oxygen from the lungs to points where it is needed, this makes more oxygen available to the muscles, nerves, and glands so that it is possible to act more quickly and more forcibly in response to whatever it is that is producing the fear, rage, or other emotion.

Studies showing the same effect of excitement on the blood of pigeons were reported by Dr. Nice and Dr. D. Fishman at the meeting in Washington of the American Physiological Society.

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IN SCIENCE

MEDICINE

Massage and Weak Electric Current to Revive Heart

A METHOD of reviving hearts, that should prove valuable in surgical operations on the heart, was reported by Dr. C. J. Wiggers, Western Reserve University School of Medicine, at the meeting of the American Physiological Society.

The method makes use of massage and a weak electric current. Both of these have been used before to revive hearts, but the new and important point reported by Dr. Wiggers is the order in which the two procedures are carried out. Massage first, then use counter-shock, Dr. Wiggers advises.

Passing an electric current of about one ampere strength through a heart that is fibrillating will stop the useless twitching of single muscle fibers known as fibrillation and make all the fibers contract together in a beat strong enough to pump the blood out into the body. This was found by other scientists in previous research. The method, known as counter-shock, has been used to revive animals shocked by low-voltage electric currents, which are one factor that causes fibrillation.

Dr. Wiggers and associates tried the electric shock method of reviving hearts that were fibrillating because of stoppage in the heart arteries. They found that the method worked, provided the stoppage of the artery was removed and the fibrillation had not lasted more than 2 or 3 minutes. After 5 to 8 minutes of fibrillation, the electric current did not stop the fibrillation and revive the heart even when massage of the heart and stimulating drugs were tried.

By massaging the heart before rather than after passing the electric current through it, Dr. Wiggers was able to revive 40 out of 47 dogs whose hearts had been fibrillating for as long as 5 to 7 minutes. No drugs or chemicals were needed.

"The method should prove of value in revival of exposed human hearts that fibrillate accidentally during the course of cardiac operations," Dr. Wiggers stated.

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E FIELDS

PHYSIOLOGY

Prescribe More Vitamin D For Babies Than Is Needed

THE AMOUNT of rickets-preventing vitamin D usually prescribed for babies is more than they actually need, Dr. Frederick F. Tisdall, of the University of Toronto, pointed out to the American Institute of Nutrition.

On the other hand, even the so-called "good diet" may not contain as much vitamins A and B as it should, Dr. Tisdall indicated. The idea seems to be that while the child may be getting along on the amount of the A and B vitamins in a "good diet," he would do much better if he were fed a diet containing more of these vitamins—what Dr. Tisdall called the optimum amount.

Studies on humans show, he said, the need for further investigation of the present dietary standards in childhood, with a view to revising these standards.

A satisfactory method of estimating the child's vitamin C requirements has not yet been found, he observed.

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CHEMISTRY

New Section of American Chemical Society Formed

A NEW section of the American Chemical Society dealing with microchemistry has been formed, it is announced by the Society. Prof. A. A. Benedetti-Pichler, of Washington Square College, New York University, has been appointed section chairman.

Fresh advances in microchemistry, "the detective of science," will be stimulated by organized national activity, Prof. Benedetti-Pichler predicted. Micro-procedures, he pointed out, are of growing importance in the industries, in medicine, in the detection of crime and art forgeries, in revealing the presence of precious metals in nature, in the study of sex hormones, and in many spheres of fundamental scientific investigation.

"Today there is hardly a branch of chemistry or biology which has not already derived benefit from the use of

microchemical methods," Prof. Benedetti-Pichler said. "Microchemistry has made it possible to study the physiological functions of small animals, even of insects. Not only an individual cell but even parts of cells have been analyzed by Linderstrom-Lang and Holter.

"Microchemical methods have enabled the laboratories of hospitals to carry out complete blood analyses on a few drops, whereas formerly quantities up to three and five ounces had to be taken for this purpose. With the old methods the repeated removal of large quantities of blood was objectionable to the diagnostician and sometimes even endangered the life of the patient.

"Microchemical procedures have furthered the isolation of insulin; the synthesis of haemin, which is the principal constituent of the blood dyestuff, and of chlorophyll, the dyestuff of plants; and study of sex hormones."

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MEDICINE

Suggests Reason Why Anemia Follows Infection

THE ANEMIA which frequently follows infections may be due to a disturbance of internal body processes which puts a check on production of hemoglobin, the oxygen-carrying red coloring matter of blood. Studies indicating that this is the case were reported by Dr. F. S. Robschey-Robbins, of the University of Rochester School of Medicine, to the American Society for Experimental Pathology.

Dr. Robschey-Robbins' studies seem to clear up a long-standing medical puzzle. Heretofore it has been generally believed that lack of absorption of blood-forming substances by the body as well as destruction of blood during infection were responsible for the anemia.

An accidental infection in dogs that had been made anemic by being bled gave Dr. Robschey-Robbins a chance to investigate the problem. He found that infection and intoxication both markedly impaired blood formation.

Further studies with other animals showed that actual blood destruction is not part of the picture and that lack of absorption of blood-forming substances can also be definitely ruled out. That leaves failure of blood production as the explanation of the anemia, and the studies suggest, Dr. Robschey-Robbins said, that the failure is due to some disturbance of internal body processes connected with food utilization.

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ARCHAEOLOGY

Mayan Pyramid Like Nest Of Blocks Is Found

A NEST of three pyramids built by the ancient Mayan Indians near Guatemala City has been discovered by an expedition from the Carnegie Institution of Washington, led by Dr. A. V. Kidder.

The discovery was made when the expedition drove exploratory trenches into a mound at Miraflores, thought to contain ruins of importance. The pyramid, which is the first pyramid archaeologists have ever found in Guatemalan Highlands, was twice enlarged, leaving the older structure inside like a child's nest of blocks.

The trenches have reached the innermost of the stucco-covered step pyramids, finding it well preserved, with walls and stairway.

The site is being excavated on request of the Guatemalan Minister of Education, Senor Villacorta, who is an archaeologist. Dr. Kidder believes that mountain valleys of the region may reveal remains of Indian groups which preceded the great Mayan civilization and laid foundations for its wonderful achievements.

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TOXICOLOGY

Physician's Finding Gives New Clue in Poison Cases

A NEW clue in cases of arsenic poisoning which tells criminologists approximately when the poison was administered was reported by Dr. R. A. Mees, of Wageningen, Holland.

The clue is found in the condition of the nails in arsenic poisoning. Dr. Mees says that in patients with polyneuritis brought on by the injection of arsenic, he found that about six times as much arsenic was in the transverse striae of the nails as in the normal nail substance. If but one or two doses had been taken the arsenic zone was clearly defined but if more had been taken the zone was more diffused. He has calculated the approximate time it takes for this arsenic zone to make its appearance after the arsenic is taken.

Physiologists say that the nail grows at about the rate of one-thirtieth inch a week on the finger and about one-fourth as rapidly on toes. By using this rate and the position of the arsenic zone, criminologists have a clue as to the time the poison was administered.

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