SCIENCE NEWS

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A DISCUSSION OF FEDERAL SUBSIDIES FOR MEDICINE

THROUGH its official journal, the American Medical Association takes to task Dr. Hugh Cabot, of the Mayo Clinic, and Dr. Robert B. Osgood, of Boston, for their activities among its membership in behalf of federal subsidies for medical schools, medical research and private hospitals. These two physicians have been circulating a set of nine principles and proposals developed by the American Foundation. They now have 450 signatures including those of some members of the house of delegates of the American Medical Association—which in June rejected these proposals—as well as the deans and heads of departments of a number of medical schools.

In its leading editorial the *Journal* of the American Medical Association states that many of the signers did so carelessly, thinking they were putting their names on a "good list." It calls upon these "unthinking endorsers" to make some prompt disclamers. The medical journal reiterates its stand, emphasizing "the danger of federal subsidies for medical schools and the hazard of turning over to the Federal Government the control and standardization of medical schools." The editorial states: "Our government has already voted $750,000 a year for the control of cancer, and it has been proposed to vote similar sums for the study of infantile paralysis, syphilis and other diseases. The danger of putting the Federal Government in the dominant position in relationship to medical research is apparent." Most serious of all, according to the association's point of view, is the proposal of federal subsidies for private hospitals in relation to their laboratory, diagnostic and consultative services. According to the editorial, such an arrangement would put hospitals promptly into the practice of medicine.

One of Dr. Cabot's letters is published in which he writes a fellow physician that there has been "a good deal of rather just criticism of the medical profession on account of its unwillingness to advise positive rather than negative action. Legislation looking toward compulsory health insurance has attracted a good deal of attention in political bodies. Compulsory insurance attacks only a very limited portion of the problem and legislation to put this into operation might well do serious harm, not because it would not be of assistance in solving certain problems but rather because it would help and might, therefore, tend to stop progress along a broader line."

Dr. Osgood, the editorial indicates, sought signatures for the proposals at the recent meeting of the American Orthopedic Association. The official medical journal writes: "Some orthopedic surgeons who signed expressed indignation at the manner in which their signatures were secured and have expressed now their opposition to governmental subsidy and control of medical practice."

Esther Everett Lape, member in charge of the American Foundation Studies in Government in New York, stated that "the foundation has no medical program," but has published a book dealing with medical economics under the title, "American Medicine." A group of physicians, however, has recently drafted a set of nine principles which are probably those referred to in the editorial of the *Journal* of the American Medical Association. Officers of this group of physicians are: Dr. Russell L. Cecil, of New York City, *chairman;* Drs. Milton C. Winternitz, of the Yale University School of Medicine, and Hugh Cabot, of the Mayo Clinic. *vice-chairmen;* Dr. John P. Peters, of the Yale University School of Medicine, *secretary.*

Sharply retorting to criticisms presented in the editorial, Dr. Hugh Cabot, of the Mayo Clinic, denies some of the charges made and characterizes other statements in the editorial as "quite unnecessary and unwarranted."

In a wire to Science Service, Dr. Cabot stated: "I have been informed of a press release of an editorial to appear in the *Journal* of the American Medical Association on October 16, which is said to object to signatures of physicians which have been obtained by me and by other physicians for what is referred to as the American Foundation proposals. It should be said that these proposals are not from the foundation, but from a group of physicians who have contributed to the report of that body. These proposals were made up after careful consideration and cover a broad ground. They suggest among other things that financing from federal, state and private sources will be necessary to improve medical service. Federal aid is only one of various sources. The signatures were not obtained carelessly but by a straightforward effort to elicit support for definite and somewhat more liberal proposals for cooperation between the profession and other interested groups. That financial assistance is necessary will, I think, be widely admitted. It is true that we believe that the position of the American Medical Association has been unduly conservative, but we have taken no action critical of the American Medical Association or in any respect out of step with what we believe to be sound democratic practice. The suggestion that subsidies would put hospitals into the practice of medicine is wholly unwarranted. The suggestion that aid from federal and other sources would put the Federal Government in a dominant position is quite unnecessary and unwarranted. We continue to believe that positive constructive action is desirable at this time."

ARTIFICIAL FERTILIZATION OF DROSOPHILA

ARTIFICIAL fertilization methods have been successfully applied for the first time to fruit-flies, or Drosophila, insects no larger than gnats, by Dr. G. Gottschewski, of the Kaiser-Wilhelm Institute for Biology, Berlin-Dahlem, at present working in the laboratories of the California Institute of Technology. Methods of this kind have been heretofore used to some extent with cattle, sheep and other mammals; experimentally also with poultry; but

the smallest animal hitherto artificially inseminated has been the queen honey bee—a creature gigantic in comparison with Drosophila.

To obtain the male fertilizing fluid, it is necessary to permit a normal mating to take place. Then the female is killed and the sperm is removed from her body with the glass tube of a micro-manipulator. It is then introduced into the body of an unmated female. The whole process has to be carried out under a microscope, and thus far the percentage of successful transfers of sperm has been relatively low.

The results of Dr. Gottschewski's experiments may be very important in the field of genetics. Drosophila is classic material for the study of Mendelian inheritance, especially since the discovery that hereditary units, or genes, can be rearranged by x-ray bombardment. Hitherto x-raying has had to be done on living animals, but through Dr. Gottschewski's technique it is now possible to apply the x-rays directly to the germ-plasm itself outside the body without involving any other tissues and thereby perhaps obtaining confused results. The technique also makes possible the production of hybrids between strains of insects physically unable to mate in the natural way. Dr. Gottschewski describes his method and discusses its significance in *Die Naturwissenschaften*.

A GROWTH HORMONE IN TREES

STUDIES in the distribution of a "growth hormone" in trees are believed to have set investigators on the track of a "cambial stimulus" claimed by botanists to be responsible for the recommencement of a tree's growth each spring.

Growth of twigs and leaves of the horse-chestnut and apple trees has been found to follow shortly the presence of the as yet unidentified secretion of the plant's tissues. Furthermore, three botanists at Connecticut College state that the hormone is present in greatest quantity during the spring months of most active growth.

Workers have in the past assumed the presence of a "cambial stimulus" to account for the beginning of growth each spring in the cambium, a portion of the tree trunk where most growth takes place. Work by Professor George S. Avery, Jr., Dr. Paul R. Burkholder and Miss Harriet B. Creighton is believed the first step on the road to naming the growth substance.

Greatest concentration of the hormone was found in shoots and buds during the months of April, May and June when growth was at its maximum. A gradual decline that set in, falling to a low level of concentration in October when growth of the laboratory trees was stopped for the winter.

Studies on twigs of both plants indicated that the greatest amount of hormone was present at those points in the twig where the most growth occurred. Increases in hormone were found in tissues from which fruit would later grow at a time shortly before the fruit began to form.

Should investigators succeed in making this growth hormone artificially, it would have wide implications for the entire agricultural industry, for it might develop into another means to control crops.

A NEW PROCESS FOR THE MANUFACTURE OF MAGNESIUM

PRODUCTION of the extremely light-weight silver-white metal, magnesium, at only half the cost of heavier and more familiar aluminum is possible by a new "electrothermic" method that promises a virtual industrial revolution through distilling many metals from their ores.

This impending commercial development was discussed by Dr. W. S. Landis, vice-president of the American Cyanamid Company, of New York City, in a technical paper before the Electrochemical Society. Magnesium metal by the new process is actually of higher strength and better quality than that made by the old electrolytic process and production in considerable volume in several widely scattered parts of the world is expected.

Already magnesium alloyed with aluminum and copper is being used in aircraft and other construction where light weight is an advantage. With the lower costs of its electrothermic distillation from the plentiful ore, magnesite or magnesium carbonate, it may compete seriously with aluminum as the material used in all sorts of construction where weight counts. Magnesium metal is 1.7 times the weight of water, whereas aluminum is 2.4 times. Because powdered magnesium (flashlight powder) explodes with a brilliant light, the metal is thought by some to be inflammable. Dr. Landis reassured his audience of chemists that this is not true if the pieces are reasonably thick. He smoked a pipe made of magnesium metal as a demonstration.

Zinc can be recovered from ore by distillation or electrothermic process. So can cadmium. Mercury and arsenic have long been extracted by distillation and the processes used have not needed improvement by recent research. Dr. Landis predicted that it will be quite feasible to produce calcium, strontium and barium, all rare in the metallic form, by use of the electric distillation furnace. Zinc and magnesium have been produced semi-commercially by the new processes.

The magnesium process begins with the calcining of the magnesite, a carbonate, to a burnt oxide. Heated by an electric furnace to temperatures around 2,200–2,300 degrees Centigrade, the magnesium oxide mixed with carbon in the form of anthracite coal or coke, gives elemental magnesium vapor and carbon monoxide gas. Under-cooled hydrogen gas is played on the magnesium vapor stream as it leaves the furnace and the sudden cooling produces magnesium powder, which finally is redistilled to metal of high purity. Since the powdered metal and the gases used are all highly explosive when mixed with air, the whole process must be conducted in tightly closed furnaces.

SOME RECENT PATENTS

MORE than seven hundred patents recently issued by the U. S. Patent Office included the following:

A patent to Gustav Tauschek, of New York City, and assigned to the International Business Machines Corporation, New York, on a telephone switchboard system that literally does everything except prevent you from calling a wrong number. Making use of the Hollerith card

punching and sorting system, the new telephone set-up automatically repeats calls until an answer is obtained either when the line is busy or there is no answer; keeps a record of the length of the call; automatically makes out telephone bills. Unlike the ordinary dial telephone, on which a caller dials the desired number and then waits to hear whether the line is clear, the user of the new system dials the number and hangs up. If there is an answer, the machine rings his telephone. If not, the call is repeated until an answer is obtained. The dial in the new set-up, instead of operating an electric number selector, operates a punching device which punches out the desired number on a card. The card is then automatically fed into a calling machine. If the line is busy or there is no answer, it is rejected, to be returned for another try a few minutes later.

A PATENT on a silencer for the gasoline engines submarines use when cruising on the surface, has been granted to Hiram Hamilton Maxim, son of Hiram Maxim, the man who invented the gun silencer that bears his name. Maxim, now president of the Maxim Silencer Company of Hartford, Conn., declined to make any comment on the invention, but the patent papers show that the silencer, located near the top of a submarine's small superstructure, is adapted to be flooded quickly when the underwater boat prepares to dive. This is necessary because of the danger of air pockets interfering with the boat's balance. Two sound-conducting channels, designed to absorb low-pitched sounds, such as those from the explosions of a gasoline motor, feature the device.

A PATENT on a system of transmitting photos over wires by dots-and-dashes has been granted. Unlike the standard method of transmitting photos, the new system breaks a picture up into dots of various shades of gray and black, and converts the various shades into electrical impulses which are turned into dots-and-dashes for ordinary telegraphic transmission. Siemens and Halske, German engineering corporation, have been assigned the patent by Johannes Herrmann, of Berlin-Siemensstadt, its inventor. Telegraphic photo systems in use to-day send the electrical impulses into which a picture is broken up directly over the wires instead of converting them into dots and dashes first, as does the new method.

ITEMS

THE reported new object in the constellation Scutum, discovered October 7 by Dr. A. A. Wachmann, of the Hamburg Observatory, is found to be the asteroid Ganymed by astronomers at Harvard University. Studies of an astronomical photograph, made October 8 by L. E. Cunningham, of the observatory staff, show that Ganymed is in the exact position of the body reported by Dr. Wachmann. Reports of new bodies which later are found to be asteroids are common, the 1,500 asteroids closely resembling stars. So annoying are these confusions that the asteroids have been dubbed "the vermin of space" by astronomers.

RADICALLY new types of optical glass can be expected in the near future, Dr. E. D. Tillyer, of the American Optical Company predicted, speaking before the Optical Society of America at Lake Placid Club. "Twenty years ago," said Dr. Tillyer, "there was only one commercial welding glass made that kept out more than 75 per cent. of the dangerous infra-red and ultra-violet light rays created by the welding arc. To-day, welding glasses of the same darkness keep out more than 99.99 per cent. of the dangerous rays. We are just at the beginning of a new era in the design of optical instruments because of new glass now undergoing laboratory development."

FALL forest colors now to be seen on Virginia hills adorned the other side of the continent thirty or forty million years ago. Persimmons and huckleberries, tulip trees and sycamores, walnuts and hickories were at home in Oregon, Washington and Idaho during the middle days of the Age of Mammals, or Miocene times, it has been shown in studies made by Dr. Roland W. Brown, of the U. S. Geological Survey, on plant fossils in the Smithsonian Institution collections. Forests of wholly different types are found in the Northwest now. The change, Dr. Brown believes, has been brought about largely by slow alterations in the North American climate.

FLEAS have been common throughout the northeastern part of the United States this fall, reports to the Bureau of Entomoolgy and Plant Quarantine indicates. Entomologists have been writing in from Maine to North Carolina, and as far west as Nebraska, telling of unusual numbers of fleas. Reports of poison-bristled caterpillars have also been coming in. Cases of saddleback caterpillars poisoning to human skin have been observed in several states, in the Midwest and South. The much more painful contact of the puss caterpillar was reported by three persons in Mississippi.

A WOODED paradise of 70,000,000 years ago has been explored by scientists and is described in a recent Smithsonian Institution report. The great forest, now represented only by fossil remains of plants and animals, existed just east of the Crazy Mountains in central Montana, near the beginning of the Age of Mammals. Collections were made there over a period of nearly thirty years, successively by three paleontologists: Albert C. Silberling, of the U. S. Geological Survey; the late Dr. James W. Gidley, of the U. S. National Museum, and Dr. George Gaylord Simpson, of the American Museum of Natural History, who completed the work and prepared the results for publication. Leading citizens of this lost world of the treetops were the most primitive members of the primate family, the earliest ancestors of the apes, known as the lemuroids and tarsioids. The only fossil remains of these creatures are teeth and an occasional jawbone. The scarcity of their fossils is possibly due to the animals having been eaten by crocodiles; only very hard objects, like teeth, could resist their terrific digestive mills. The remains are so fragmentary that the scientists have no definite idea what the animals looked like. Other inhabitants included shrews, an order of animals still living, and a long-extinct group known as the multituberculates.