MEDICINE

Scientist Urges New Look At U. S. Medical Schools

FEWER students applying to the nation's medical schools and the lower grades of those that do apply can mean disaster for U. S. medicine.

If something is not done about the shortage of top-grade candidates for medical schools, "medicine will deteriorate and we will fail miserably to provide the physicians" the U. S. needs, said Dr. Robert A. Moore, president of the State University of New York Downstate Medical Center.

He told scientists attending the annual William Henry Welch Lecture at Mt. Sinai Hospital in New York that the percentage of college graduates applying to medical schools has declined from 11% in 1928 to about 4% today. At the same time medical schools have increased their enrollment by 1,671. Today 18% of the applicants have "A" averages compared with 40% ten years ago.

There are several possible reasons for medicine's inability to attract more of the best graduates, Dr. Moore said. These include: long preparation time; high education costs; limited scholarship funds; inflexible program, and the general public's misconception that it is difficult to be admitted to a medical school.

Dr. Moore urged that this serious challenge to medical education be analyzed as a "scientific research problem." Active recruitment and a shortening of the total period of preparation to become a doctor were two remedies he suggested.

Science News Letter, January 23, 1960

HEMATOLOGY

Seaweed Substitutes For Whole Blood

A SEAWEED compound mixed with water can substitute for whole blood in transfusions, two Japanese surgeons have reported.

Solutions of the gelatin-like substance which comes from the cells of the giant brown seaweed have been successfully used in 102 abdominal operations, they report in the *Journal of the International College of Surgeons* (Dec., 1959).

The use of "alginon," as the compound is called, is based largely on earlier research with another seaweed derivative called "algin" from sodium alginate. Both compounds have been tested as whole blood substitutes because they are made up of large protein molecules or polymers. Like natural blood plasma, solutions of the seaweed compounds stay inside the blood vessels, keeping blood pressure from dropping to dangerous levels.

The new seaweed compound alginon does not damage the spleen, nor does it cause hemorrhages in the skin, report Drs. Masanobu Tomoda and Kyoshi Inokuchi of the Kyushu University Medical School, Fukuoka, Japan.

In tests with rabbits that had suffered bad burns or had lost a lot of blood—both shock conditions—no harmful changes in physiological processes were detected. Autopsies showed no effects on spleen, liver, kidney, adrenal gland, lung or brain tissues.

Furthermore, 70% of the alginon was excreted within 24 hours, indicating that "alginon has a proper period of retention in the blood without depositing itself in tissue," Drs. Tomoda and Inokuchi say. It is better than the sugar- or salt-water solutions sometimes used in emergency transfusions because it is chemically stable, it improves the blood's ability to coagulate, and it does not dilute the capillary blood so that few red cells reach the tissues of extremities such as fingers or toes.

Unlike earlier versions of sodium alginate, this seaweed compound is said to cause virtually no harm.

"Of a total of 477 cases there was a fever in 0.8%; chills occurred in 0.8%, and other complications were almost negligible," the Japanese surgeons say.

Science News Letter, January 23, 1960

MEDICINE

Hospital Under New Plan Cheaper, More Efficient

A NEW APPROACH to hospital care has proved to be more efficient, less expensive, and more beneficial to patients.

The new approach is called the "progressive patient care" plan. One of the first hospitals to adopt such a plan was the 300-bed Manchester Memorial Hospital in Connecticut. The change-over to the new plan began in April, 1957, Drs. Howard J. Lockward and Lane Giddings, and Edward J. Thoms, of the hospital, report in the *Journal of the American Medical Association* (Jan. 9).

Although hospitals have mushroomed into this nation's third largest industry, care of patients need not be impersonal, they stress.

"One of the main charges leveled at modern medicine is that we treat the disease instead of the patient," Dr. Lockward says. However, this new plan has made it possible for each patient to be treated individually according to his medical needs, he explains.

The basis for this program rests on the degree of the individual's illness.

There are four units under the plan: special care unit for the seriously ill; intermediate care unit for those ill, but not seriously so; self service unit for those able to take care of their own bodily needs, and continuation care unit for those chronically ill.

This type of separation resulted in a number of benefits, Dr. Lockward says. For example, the alert recuperating patient no longer had his rest disturbed by an acutely ill roommate.

Through the special care unit, it was possible to admit all emergency patients without delay, by-passing the admitting office. As patients improve, or their needs change, they are moved from unit to unit. These improvements in patient care had been achieved "at no greater cost to the patient," Dr. Lockward says.

The total patient cost per day is 20% less than the average for 17 other hospitals of comparable size, he reports.

Science News Letter, January 23, 1960

IN SCIEN

ORNITHOLOGY

"Salty" Sparrows Can Live by Sea or on Desert

CERTAIN sparrows can go without water for long periods of time and can even slake their thirst with sea water—thus preadapting them to occupying desert areas.

This is one of the conclusions of a study of Savannah sparrows at the University of California, Los Angeles, by zoologists Drs. Tom J. Cade and George A. Bartholomew.

The investigators found that these sparrows were able to survive without water for up to three weeks. They were then able to regain weight lost during dehydration by eating meal worms or drinking sea water.

These birds apparently have a peculiar body chemistry which enables them to obtain physiologically useful water from salt water and to dispose of large amounts of salt without harm. Some of the sparrows ingested an average of almost two percent of body weight of salt per day with no apparent harm.

Savannah sparrows characteristically occupy salt marshes, which are a habitat of great geological antiquity. Their ability to live in these areas, perhaps through the ages, probably preadapted them to occupy deserts of western North America, which are geologically younger than salt marshes, the UCLA zoologists pointed out.

Populations of these birds have successfully established themselves on waterless desert islands off Mexico's Baja California, they noted.

Science News Letter, January 23, 1960

DERMATOLOGY

Age and Sex Influence Immunity to Ringworm

SOME PERSONS appear immune to ringworm although antibodies to the infection have not yet been found.

This immunity is influenced by an individual's age and sex, Lorraine Friedman of Tulane University, New Orleans, La., told scientists at a conference on medical mycology. A study of some 540 cases of ringworm of the scalp points to many influences on the course of infection, including individual variation and past infection.

The ratio of males to females infected with one disease organism, *Microsporum audouini*, was five to one; incidence was about equal when *Trichophyton tonsurans* was the causative agent, however. Evidence for natural immunity to ringworm was seen when it was observed that some persons in close contact with infected individuals failed to get the disease.

Not one of the entire group of patients treated for ringworm returned with a second case, the researcher reported.

Science News Letter, January 23, 1960

CE FIELDS

ENGINEERING

Germany Is Building Three Nuclear Reactors

TWO ATOMIC reactors, one for research and the other for testing materials, are nearing completion at the Joint Atomic Research Establishment of the Land North-rhine-Westphalia, Germany.

A power reactor, ordered by a cooperative group of German power suppliers, will be erected in the same research area.

The two Research Establishment reactors are of the British Merlin and Dido types. They are expected to be in operation by the end of this year.

"Merlin" is a water-moderated swimming pool reactor, fueled by enriched uranium. It has 14 irradiation channels.

"Dido" is a heavy-water-moderated reactor, also fueled by enriched uranium. It will have 48 irradiation channels.

In addition to the two reactors there will be nine scientific institutes on the research grounds, conducting research in such fields as chemistry, reactor development, nuclear fusion, isotope separation, biology and medicine. The Joint Atomic Research Establishment is located at Julich, half way between Cologne and Aachen.

Science News Letter, January 23, 1960

GENERAL SCIENCE

"New Look" in Meetings Hinted by Report

A "NEW LOOK" may be in store for the big engineering and scientific meetings that draw many thousands of delegates yearly from all parts of the United States.

A report to the Daniel and Florence Guggenheim Foundation explores criticism that these meetings are too frequent, cost too much money, are riddled with duplication and in some cases are eating seriously into the working time of employees.

If recommendations in the report are adopted by professional societies, there will be no papers presented that merely seek to sell a product. More slides, charts and models will be used by speakers. If a speaker does not have something significant to say, he will not appear on the program. Papers may be circulated in advance to persons planning to come, with meeting sessions largely devoted to discussion. Concurrent sessions will be black-listed.

Made by Pendray & Company, Bronxville, N. Y., the report concentrated only on technical meetings in the flight sciences. But in this single area, it was estimated that meetings cost industry 258,000 man-days of working time and $21,500,000 a year. "Hospitality suites" add an extra $1,000,000 to $3,000,000 to the over-all cost.

In view of time and money spent on such meetings, their value as a means of communication is being challenged. The study bore out industry's belief that the number of such meetings is increasing.

Despite this, the report said, "It is a real question whether the process of disseminating technical information as presently practiced is good enough for our rapidly changing and burgeoning times."

A group of companies were surveyed, of which 67% said there are too many meetings and 85% said there is considerable overlapping and duplication in technical society programs. But comparison of papers and authors showed little duplication, the report said.

Of eight professional societies surveyed, seven conceded receiving complaints from members on number and quality of meetings. The eighth, the Institute of Radio Engineers, declared it had not received a single such complaint, although admitting that some "careless talk" along these lines had been heard.

Science News Letter, January 23, 1960

PHYSIOLOGY

New Compound Provides For Easy Weight Loss

WEIGHT reduction now comes in four flavors: chocolate, raspberry, butterscotch and "plain."

Results of a recent study indicate it is possible to lose an average of one-half pound a day merely by drinking a quart of the newly flavored, non-drug dietary product developed by Mead Johnson & Company.

Clinical tests in which 100 persons took Metrecal, as the powder is called, showed it was effective in reducing weight without leaving the "patient" hungry. Each person was asked to take Metrecal for 12 days and only three failed to lose weight, due to "gross cheating," reports Dr. Robert J. Antos of the Good Samaritan Hospital, Phoenix, Ariz.

Weight losses for the study group ranged from 8.2 pounds for the men to 6.3 for the women. Dr. Antos points out in *Southwestern Medicine* (Nov., 1959) that Metrecal seems to answer the four requirements for weight reduction in the usual obese patient:

1. It is convenient and easy to use; effective within a short period of time; generous in required nutrients, including from one to three and one-half times the minimal daily requirements of some vitamins and minerals; and "filling."

The Metrecal drink has a bland, malted milk flavor. It mixes easily with water, dissolving quickly with stirring, beating or shaking. About 95% of the patients who replied to queries on the flavor, replied that it was "good" or "average."

One of the important factors in the diet, Dr. Antos said, is Metrecal's high protein content—30.5%. One-half pound of the powder, the usual daily ration, supplies 900 calories, 70 grams of protein, 20 grams of fat, and 110 grams of carbohydrate.

Metrecal is a powdered mixture of skim and whole milk, soya flour, sucrose, starch, corn and coconut oils, with suspending and flavoring agents, vitamins and minerals.

Science News Letter, January 23, 1960

ZOOLOGY

Hippo Baby "Bubbles" Nurses Underwater

See Front Cover

A FEMALE baby hippopotamus, born just about a month ago, is being kept in strict isolation in the hope that it may live and grow from its 75-pound birth weight to a mature 3,500 pounds.

Born in the Detroit Zoological Park, Royal Oak, Mich., to the parents "Jenny" and "Barney," the baby hippo, "Bubbles," has already about doubled her weight to 150 pounds.

She nurses underwater but comes up for air about every 30 seconds during the five-to-ten-minute feeding period. She has recently started to eat bread and other solid foods.

"Bubbles" stays close to her mother as can be seen in the cover photograph of this week's SCIENCE NEWS LETTER. She often rests her head on her mother's head between play periods. Jenny is a protective mother, never allowing anyone to get between her and the baby.

When she plays, Bubbles dives into her heated pool like a seal. The water is kept at a constant temperature of 65 degrees. When inside, the baby hippo gets frequent baths from its keeper to prevent its skin from getting dry and chapped.

No strangers, including staff, are allowed to disturb Bubbles. Young hippopotamuses have failed to survive in the Detroit Zoo so that all possible care is taken to keep Bubbles out of troubles.

Science News Letter, January 23, 1960

ICHTHYOLOGY

East Indian Fish May Have Oceanic Subway

A SORT OF oceanic subway system may explain how certain shallow-water fish from the East Indies have reached the western shores of South America.

Ten thousand miles of Pacific Ocean separate the shores of the Eastern and Western Hemispheres and usually fish populations of the two are quite distinct.

A few species plentiful in the East Indies, however, have made the eastward trip and have established themselves in the New World area.

How such small and relatively feeble fish could cross the vast expanses of the Pacific, bucking a prevailing westward surface flow, has long been a matter of speculation.

Dr. Carl L. Hubbs of the University of California's Scripps Institution of Oceanography, La Jolla, Calif., believes these fish may have been trapped in the Equatorial Countercurrent at the surface and in the more rapid sub-surface Cromwell Current, both flowing eastward.

The latter was discovered in 1954 and is believed, on the basis of subsequent research, to extend all the way across the Pacific. It has been described as being as strong as 1,000 Mississippi Rivers, and as swift as the Gulf Stream.

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