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MENTAL ILLNESS AND DEFECT

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DR. ROCK SLEYSTER, of Wauwatosa, Wis., in his presidential address at the St. Louis meeting of the American Medical Association, pointed out that mental illness and defect are the next great plagues in line for attack by medical men. Hand in hand with the attack on these problems will come an understanding of man's mind to help solve problems of government.

"One by one the great plagues that used to devastate mankind are being overcome," he said. "No longer does civilized man live in constant fear of cholera, smallpox and bubonic plague. Typhoid fever has become so rare that many a modern physician has never seen a case of this disease. . . . In our own time we have seen arsphenamine for syphilis, insulin for diabetes, liver for pernicious anemia, biologic preparations for pneumonia and scarlet fever, sulfanilamide and sulfapyridine for streptococcic and pneumococcic and similar infections. . . . We have seen the life expectancy rise from 40 years at birth to 62 years. What fields remain to be conquered? Among the problems which yet confront us, mental defect and mental disease are increasingly significant. They are imposing in their scope. An understanding of the human mind and of human thinking may aid in the solution of problems of government."

The 1,300,000 Americans who, Dr. Sleyster estimates, are on any one day incapaciated by epilepsy, feeblemindedness and various types of mental illness, constitute a problem which it is directly up to physicians to solve. Besides this, there is the problem of how to oppose the forces which tend to sap the vitality of men and women, destroy their initiative and break down individual character.

"The citizen of the United States in Revolutionary times was a hardy pioneer who had fought the forces of men and of nature successfully and who knew where he wanted to go and what he wanted to do," Dr. Sleyster pointed out. "To-day the forces that have been developed by man as a result of modern invention in the field of both materials and of thought are so intricate and so great that frequently they are far beyond the ability of the average man to grasp. Hence bewildered, little men seek constantly for leadership without even sufficient data or background to determine whether or not the leadership is for good or evil."

It is the responsibility of the physicians and of the nation to see that, as a consequence of this situation, people do not pay too great a price, in breakdown of character, for security in old age, medical care and insurance against unemployment. Granting that not all the people possess the benefits of "American life and living," which are enjoyed by the majority, Dr. Sleyster said that the same forces which brought us to our present high standards of health and living should enable us to extend these benefits to those who have not yet enjoyed them. To this purpose the American medical profession has repeatedly dedicated itself. He added that as president of the American Medical Association for the coming year he proposes to devote himself primarily to this task of "doing all that can be done to spread more widely the benefits of American life and living."—JANE STAFFORD.

ANALYSIS OF WAGNER HEALTH BILL BY A COMMITTEE OF PHYSICIANS

WARNING against "niggardly" financial provisions in a national health program was sounded at a recent Senate subcommittee hearing on the Wagner Health Bill. The warning came from the Committee of Physicians for the Improvement of Medical Care, Inc., formerly known as the Committee of 430 Physicians.

The $10 per capita per annum proposed in the report of the Technical Committee, whose work preceded the Wagner Bill, as the cost of a national health program is too low to insure good quality of medical care, the Committee of Physicians believes. According to the statement of the committee, it has "felt constrained to adopt an uncompromising attitude towards projects or measures that obviously violate the fundamental ends for which they have united, namely, the protection and improvement of the quality of medical care.

"To embark upon a program that contemplates the expenditure of only $10 per capita per annum, when this is obviously inadequate, would inevitably sacrifice quality to mere distribution.

"Experience of non-profit organizations already engaged in providing medical services indicates that, under private auspices, full medical care of acceptable quality costs more than $20 (possibly nearer $30), *per capita per annum.*

"Any attempt to introduce compulsory health insurance widely at this time is viewed 'with disfavor.'"

Voluntary sickness insurance should be encouraged, the committee believes. Even though it can not be expected to solve all the medical problems of those just above the level of true need, it will assist many to meet their financial obligations. Group medical practice "properly organized at the initiative of physicians or consumers" is considered a good method for coordinating all the necessary components of medical care which might be provided under a health and medical care program. "Such group activities for the care of the needy could well be centered about hospitals and diagnostic and therapeutic centers. Full correlation with existing public health services must also be provided."

If all concerned direct their concerted efforts toward developing a program that would assure the highest quality of care, the committee believes the two vexatious problems of distribution of authority and administration could be solved.

ATOMIC ENERGY AND CHEMICAL REACTION BY HEAT

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THE heat produced by the release of atomic energy

from the splitting of uranium has been made to create a chemical reaction for the first time, according to a report in the current issue of *The Physical Review.*

Investigators at New York University have demonstrated that nitrogen iodide can be made to explode when placed near uranium that is being split by bombardment with neutrons.

The chemical action thus set off is believed caused by the heat released from the splitting uranium atoms. Chemically the reaction is without practical or commercial importance because nitrogen iodide is known to be a very unstable compound which will explode if dropped or otherwise carelessly handled. However, the experiment is perhaps a historic one in this field of research.

Dr. Eugene Feenburg, theoretical physicist, devised the experiment, which was carried out by Professor Walter A. Schneider and R. C. Waddel, of New York University, and Dr. Dixon Callihan, of the College of the City of New York.

In other studies made on the problem of the nature of energy released from uranium, Drs. E. T. Booth, J. R. Dunning, G. N. Glasoe, F. G. Slack and J. Steigman, of Columbia University, reported:

1. The fission products of uranium splitting fly off sufficiently to pierce 2.2 centimeters of air, nearly an inch. Another group, having a range of 1.5 centimeters, was also noted.

2. Two gaseous products (yet unidentified but perhaps inert gases like krypton and xenon) are given off when uranium is split. Both these gases seem to be radioactive with a half-life decay of 35 seconds and five minutes respectively. The short-lived gas is apparently created when barium is produced as the other splitter particle. The chemical element associated with the longer-lived gas seems to be rubidium.

3. The sum of the energies of the two splitter particles sums up to a total of 175,000,000 electron volts. This is considerably less than the 200,000,000 electron volt energies predicted for the fission process by theory. The difference is probably due to considerable energy being used for the excitation of the splitter fragments which results in the emission of neutrons, gamma radiation and electrons.

DANGERS THT MENACE SUBMARINE CREWS

THAT the men who go down to the bottom of the sea in ships are called on to face five varieties of danger to which men on surface ships are not exposed at all or not in the same degree, is shown by a survey looking back through thirty-seven years of submarine disasters.

They must face danger of suffocation from exhausting the underwater vessel's supply of oxygen. They are menaced by carbon dioxide, generated in their own bodies and exhaled from their lungs, poisonous when its concentration in the air passes a certain point.

Sea water can turn the electricity-generating chemicals of the storage batteries that power the electric motors for underwater operation into generators of deadly chlorine gas, the first of the World War's poison fumes.

Collision is more of a menace to submersible craft than to surface ships, as the record shows, because a submarine has practically no reserve buoyancy, unlike ordinary vessels. If it had, it would not dive when its ballast tanks were filled. So if collision breaks open more than one of its compartments, its staying afloat would be something of a miracle. Many specially designed surface ships can stay right side up and on top of the water with several compartments flooded.

Ever present, also, is the danger of a failure in the pumping system for forcing water out of the ballast tanks. The tanks are filled to dive. Akin to this menace is the never impossible failure of a valve or a hatch to stay closed when the ship is below the surface; or of a submarine going down with one or more of its inlets open. This latter has happened particularly when the ship sank quickly after being rammed.

Oxygen tanks are carried on submarines to provide enough of the life-giving gas to last between 72 and 100 hours. When trapped on the bottom, crew members stay as still as possible in order to conserve the precious supply. Oxygen consumption increases with one's physical activity. The tanks are generally set to release the gas when its concentration goes below 21 per cent.

Soda lime is carried on all submarines to absorb the carbon dioxide the men breathe out. It is put in the mechanical ventilating system, and if that fails it is scattered about the ship. Half a pound per man per hour is needed. Gas masks are carried to protect the sailors against the chlorine danger. Seawater reaches the batteries as a result of collision or, possibly, as a result of failure to close a valve or a hatch. Chlorine is blamed for the loss of 60 men aboard the British submarine *M–2* on January 26, 1932.

Carbon monoxide from gasoline engines used for driving the ships while they were on the surface used to be a serious hazard, but it is no longer because Diesel engines are now used in place of gasoline motors.—LEONARD H. ENGEL.

ITEMS

A WATERFALL three times the height of Niagara will begin to pour and roar about four years from now. It will be an artificial cataract, the spillway of the new Shasta Dam in the Sierra foothills, and will have a height of 500 feet above low-water level. Shasta Dam, which is part of a project to quadruple the area under irrigation in the Sacramento-San Joaquin Valley, and also to insure a constant year-round flow in the Sacramento River, is described in the new issue of the *Geographical Review,* published by the American Geographical Society.

DR. JOHN G. BELLOWS and Herman Chinn, of Northwestern University Medical School, have found that fifteen minutes after the first dose of sulfanilamide is given by mouth it can be detected in all the tissues, even the fluids of the eye. The ready penetrability of all tissues thus far examined to sulfanilamide is an important factor in its efficiency in treatment. Encouraging reports have already been made of the effects of the new drug in the eye for trachoma, gonorrheal ophthalmia, orbital cellulitis and abscess of the lid. Streptococcic infections in rabbits' eyes have been successfully treated with sulfanilamide, but thus far little work has been done on the penetration of this compound into the eye.