

"The feeling of pride in essential accomplishment now inspires large numbers of American infantry units that have fought in Africa, Europe, and the Pacific. It is a battle pride that touches every infantryman still on the way to his

first experience of combat. The pride in fighting skill of every infantryman who has now seen fighting and knows the vital importance of his own war job can be shared by every combat soldier who is still at work perfecting his skill."

Science News Letter, September 11, 1943

PUBLIC HEALTH

Health at 50c Weekly

Good medical and health care for all is possible and practical, de Kruif reports after study of the Kaiser set-up.

➤ THE BEST scientific medical care, complete in every detail, for every man, woman and child in America at a weekly cost to them of 50 cents each is possible and practical for the immediate future, Paul de Kruif reports on the basis of a study of Henry J. Kaiser's medical plan.

The report appears in the form of a book, *Kaiser Wakes the Doctors*, (Harcourt, Brace).

Dr. de Kruif (he is a Ph.D., not an M.D.) admits taking pains not to let his natural enthusiasm for the subject run away with his scientific judgment. This is apparent in the unusually restrained style. Not until near the end of the book does the typical de Kruif emotional appeal reach its full pitch. At that point most readers, probably including many physicians, will be in tune with the author.

The book tells first about how Mr. Kaiser and his able medical director, Dr. Sidney Garfield, put into effect a program of complete and expert medical care for Kaiser workers on a financial basis so sound that the cost of building and equipping hospitals and other facilities as well as running them is covered.

It tells how these two practical dreamers conquered the opposition of medical societies in California and Washington by: 1. showing that the medical care given the Kaiser workers was up to the best standards of medicine available anywhere; 2. showing that the individual physician practicing by himself, no matter how hard he tried, could not possibly give such care at a price the common man could pay; 3. showing that such health centers as Kaiser's workers had, replicas of the Mayo Clinic for the common man, would be free from bureaucratic control by any government agency; 4. showing that, as the center developed, funds would accumulate, in the nature of real profits, which could be used for sup-

porting research in the field of medicine.

The financial end, a headache to most doctors, is managed, when the plan is applied to industrial workers, by industry with the workers having a voice in the management, but, as Dr. de Kruif quotes Mr. Kaiser:

"You, the doctors, have got to personnel it. You're the only ones who know how to staff it. You've got to set up the scientific standards, hold every doctor to them. You'll have complete control of your personnel."

So far, the Kaiser plan for super-medical service within the pocket-book range of the common man applies only to Kaiser workers and, through the California Physicians' Service, to their families.

Extending it to other large industrial groups would not be difficult since the management and financial backing would be readily available. Extending it even to workers in small industries, white collar workers in small towns, farmers in remote rural areas, in fact to the common man everywhere, is not impossible, according to the de Kruif-Kaiser-Garfield thinking. Such groups, they believe, could band together to create health centers for themselves, getting financial support until they are self-supporting from bankers. For the encouragement of the bankers, a government Medical Loan Agency, like a medical RFC, to guarantee 50% of any losses, is suggested.

These Mayo Clinics for the common man, as Dr. de Kruif terms them, would be for persons of small or moderate incomes. They would not keep doctors from treating wealthy patients as they do now. Dr. de Kruif believes, however, that very many specially trained doctors, particularly the younger ones and those who will return to civilian life after the war, would be delighted to have an opportunity to practice high grade scien-

tific medicine without worrying over finances—their own or their patients'.

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MEDICINE

Treatment Recommended For "Dural Poisoning"

➤ IF YOU WORK in an airplane plant or some other industry in which aluminum alloys were used, you may have heard about the condition popularly called "dural poisoning." This takes three forms: 1. The worker gets a splinter of the metal in his skin after which inflammation sets in and an abscess may form; 2. A driller gets a puncture wound which closes easily, but leaves an aftermath of painful, tender inflammation and swelling under the surface; 3. A relatively few workers, about four to six per 1,000, get eczema, itching or other skin disease from contact with the light metal dust. A test pilot who took up a new airplane, it is reported, had a sliver of light metal penetrate his lip causing a severe inflammation.

The magnesium in the alloy is specifically responsible for the characteristic disturbances, Dr. Ludwig Teleky, of the Industrial Hygiene Division, New York State Department of Labor, declares. When the magnesium gets into the body tissues it decomposes the water, as potassium and sodium do. As a result, cavities form in the tissues and bubbles of hydrogen gas develop in the cavities. The magnesium hydroxide which is produced as part of this chemical reaction is apparently absorbed by the tissues.

Splinters of light metal alloys, Dr. Teleky also points out, have many small barbed hooks which can be seen under the microscope. These stick in the wound, and attach themselves to the skin and clothing. Splinters of iron, steel, copper and other heavy metals and of pure aluminum are much smoother and these metals almost never cause inflammatory reactions.

Many injuries from light metal splinters heal in a short time with no ensuing disability. In some cases, however, the splinter may disable the worker for from 10 to 14 days or longer. Workers with duraluminum or other light metal alloys should seek prompt medical attention for any injury or scratch of the skin to avoid the more serious results of such injury. Although the doctor will decide what is the best treatment in each case, Dr. Teleky suggests the following: 1. Removal of all splinters that can be seen; 2. Use of hydrogen peroxide, since as

this bubbles up in the wound it tends to bring to the surface and help remove splinters too small to be seen; 3. Disinfection of the wound and application of the usual sterile dressing.

To prevent the condition, dust in the workrooms must be kept from spread-

ing by every possible means. Workers should wear protective uniforms. Their skin should be thoroughly cleaned at the end of each day to remove all dust and splinters on the skin. All dust should be periodically cleaned off tools and finished work, preferably by suction.

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BIOCHEMISTRY

Virus Probably Protein

Fresh evidence obtained with whirling super-centrifuge that particles of tobacco mosaic virus are really very large molecules.

► FRESH EVIDENCE that virus disease particles are giant protein molecules endowed with the life-like properties of reproduction and parasitic feeding has been obtained by Dr. Max A. Lauffer of the Rockefeller Institute for Medical Research at Princeton, N. J., it was revealed at the meeting of the American Chemical Society in Pittsburgh.

This new advance in science's war against disease was made through the use of a powerful weapon known as the ultracentrifuge, which whirls tubes of solutions at speeds far exceeding those of rifle bullets and cannon shells, separating substances or particles of different densities and sorting them in layers, as a cream separator separates cream from skim milk.

Identification of virus particles as giant molecules was made tentatively eight years ago by Dr. Wendell M. Stanley, also of the Rockefeller Institute, who first obtained a disease-bearing protein from sick tobacco plants in pure crystalline form. At that time it was learned that these suspected molecules are enormous, with molecular weights in the hundred-thousands, as contrasted with the mere tens or hundreds that represent the weights of ordinary molecules like those of sugar or gasoline.

Dr. Lauffer's feat in more definitely pinning the guilt for disease-causing onto the big, bad molecules was accomplished by means of a special container employed in the ultracentrifuge, in which an adjustable perforated barrier permits any desired fraction of the contents to be removed without disturbing the rest.

A solution of the disease virus was whirled in this container until just one-fourth of it remained above the barrier.

When this was removed and samples of it inoculated into healthy plants, it was found to have one-fourth the disease-causing ability of the whole solution. This constituted strong statistical evidence for the identity of protein and virus.

The virus on which the Rockefeller Institute researches have been conducted is that of tobacco mosaic, one of the worst loss-causers in tobacco fields. However, that in itself is of less importance than the possibility of transferring the conclusions to apply also to other disease viruses, which include the microscopically invisible causes of such serious human ills as infantile paralysis, yellow fever, smallpox and influenza.

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MEDICINE

Blood Donations by War Workers Get Okay

► WAR WORKERS form an impressively large group among patriotic Americans who are giving blood to the armed forces through the American Red Cross. They are doing this regularly, without danger to themselves, and without any slow-down in their work production, it appears from a report from the Industrial Hygiene Foundation.

One industrial company, before encouraging its workers to give blood to the Red Cross, recently asked the Foundation whether giving a pint of blood would make the donor weaker or more susceptible to colds or other diseases and whether it would cause absenteeism or slow production.

The Foundation referred the questions to members of its medical committee and to Dr. G. Canby Robinson, national director of the Red Cross Blood Donor Service, and to the technical director, Dr. Earl S. Taylor. The answers were unanimous that war workers could safely give blood. Typical is this answer:

"We have one of the largest Red Cross donor stations here in Milwaukee. All of our large war plants are encouraging their employees to contribute their blood at two to three-month intervals. They have found no decrease in the efficiency of their employees, no increase in colds or other infections, and no increased fa-



SAFETY AND BEAUTY—An attractive headdress with flaming bombs has been designed by the Army Ordnance for women working in the arsenals. At work, to protect the hair, they must wear it in the manner used by the girl on the left. After hours, the girls prefer to wear it as shown on the right.