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# STENOGRAPHERS' MINUTES

BEFORE THE

UNITED STATES MARITIME COMMISSION

NO.

MEETING IN REGARD TO [illegible]

REQUIREMENTS FOR INDUSTRIAL

HEALTH AND SANITATION STANDARDS

VS.

AT: Chicago, Ill.

DATE: December 7, 8, 1942.

ETHEL E. FISHER AND ASSOCIATES, INC.
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# I N D E X


| | Page |
|---|---|
| Remarks of Chairman Ring | 2 |
| Address by Philip Drinker | 11 |
| Address by Lt. Comdr. D. E. Carlson | 25 |
| Address by Dr. Hedwig S. Kuhn | 27 |
| Address by Mr. John Roche | 28 |
| Address by Mr. Jack Wolff | 43 |
| Address by Mr. Max Kasseris | 55 |
| Discussion of Minimum Standards for Control of Health | 60 |
| Address by Ensign K. W. Nelson | 105 |
| Address by Ensign Merrick Ross and Demonstration of Welding | 114 |
| Address by Ensign John F. Ege, Jr. | 126 |
| Discussion of Minimum Standards for Safety. | 152 |
| Joint Meeting of Safety Men and Physicians | 249 |
| Address by Dr. Hedwig Kuhn | 256 |
| Resolution of Dr. Rieke's Committee | 274 |
| Adoption of Medical Standards | 293 |
| Adoption of Safety Standards | 300 |
| Discussion of Women's Clothes for Use in Shipyards | 304 |
| Address by Mr. Jack Wolff on Job Instruction Training | 323 |


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UNITED STATES MARITIME COMMISSION
AND
UNITED STATES NAVY

MEETING IN REGARD TO MINIMUM REQUIREMENTS FOR INDUSTRIAL HEALTH AND SAFETY IN SHIPYARDS.

The first session of the Shipbuilding Health and Safety Section of the United States Navy and United States Maritime Commission, held in the Century Room, Hotel LaSalle, Chicago, Illinois, on Monday, December 7, 1942, convened at 10 o'clock a.m., Mr. Daniel S. Ring, Chief, Shipyards Labor Relations, United States Maritime Commission, presiding.

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CHAIRMAN RING: Now as we start off, I guess we better know who we are. My name is Ring. I am with the Maritime Commission, in charge of the shipyard labor relations, and part of the function of the shipyard labor relations is that of safety and health programs for contractors of the Maritime Commission in the various yards all over the country.

This conference is being called jointly by the Maritime Commission and the Navy in the interest of promoting standardized programs to develop at least minimum requirements for the two, safety and health, for the million people who will be in the shipyards after the first of the year.

The invitations went forth to all of the contractors in shipyards on the Atlantic, Pacific, Great Lakes, and Gulf Coasts, and a response has been received which indicates that there will be a far larger attendance here as the day goes on than now. We received a number of wires this morning indicating that trains are late, planes have been delayed, and that those who are intending to attend the conference will be delayed.

We are afraid to hold things up any longer on account of those with transportation delays, and felt if we were going to get anywhere we might as well start now and let the latecomers pick up as they come in.

This conference was set on foot after it was realized that although during the last year tremendous strides had

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been made with production in the fast and growing expansion of all of the plants, too little attention had been paid to the matters involving the health and safety of the employees. We have had towns, and sizable towns, that have grown to double their capacity, and to treble their capacity, during the last year, and we have had yards that have mushroomed out to such a degree that in the rush and bustle of getting production going and putting the work in on the million tons of shipping we expect to get in this year, that possible the features of protecting the health of the men who are working in the yards and their safety have not been emphasized on a standardized basis and on a uniform basis as they should have been.

Accordingly, the Maritime Commission and the Navy decided that they would have a survey made in which facts would be gathered whereby we could present to the industry and those who are principally interested standards for the observation of rules governing the health of men working in the yards and their safety. As a result of that, the services of Mr. Drinker, who is the head of the Public Health, and a group of men from the Bureau of Medicine and Surgery, of the Navy, were detailed to take a tour in typical yards all over the country to find out what the facts were. We felt that before planning on any rules we had better get down to bed rock and know exactly what conditions exist.

ports on each yard, transmitting the same to the yard for their guidance. In addition to that, they were at all times collecting data which would be in the nature of a common denominator as far as everyone was concerned, so that at the conclusion of the tour Mr. Drinker and his associates felt that we would have enough facts at hand to be able to present to the industry, through the Maritime Commission and Navy, minimum standards as to the requirements for the protection of the health of the men in the yards.

During this morning, Mr. Drinker will present to you those minimum standards for health. At the same time Mr. John Roche of the National Safety Council also made a tour of the principal shipyards in the country from the standpoint of safety, and he has developed a number of facts which have led him to believe that we can now have a sufficient factual basis to prescribe minimum standards so far as the safety factors in the yards are concerned.

In addition to that, Mr. Jack Wolf, who is in charge of training for the Maritime Commission, has also made a number of tours and he has some very decided ideas with respect to the inculcation of the health hazards and the safety perils in the minds of men who are just entering the industry. He feels, and we all feel, that this can be very well made a part of the training program, so that as the man walks in new

and green, into the industry, one of the very first things that he gets along with the training as far as the skill of the craft that he is going to work in is concerned, is a knowledge of what he must do, and what he must observe to protect his own health and to protect his own safety.

If you get that to the men when they are just coming in the yard, why then you have started right at the foundation to build up a respect for the health and safety program.

You will notice, among other things hanging around here, a lot of empty suits which are designed for the use of women coming into industry. We all know from recent reports that there is going to be a tremendous influx of women in the industry, specialized attention therefore is being given along those lines independent from the line that this conference will proceed upon. However, we have felt in view of the fact the manufacturers have moved toward the production of clothes which will be safe for women to wear in the industry, you might like to see some. Accordingly, arrangements are being made, and our scouts are now out to obtain some human figures of attractive form that can make these empty clothes that are hanging on the rack a little more delectable so far as the eyes are concerned, and it is hoped that tomorrow we will be able to present to you a specific demonstration with some of the more attractive types of people in Chicago to be wearing them so that you can see for yourselves exactly how the fea-

be tures of the clothing will be presented.

I was at first a little afraid of such a program, because it struck me that maybe the wearer of the clothes and their appearance might detract from the concentration on t... clothes themselves if we did such a thing. However, I was overruled, and Mr. Roche especially here said, "You do not expect these fellows who are pretty hard boiled and who have come from all sections of the country, to become very enthusiastic and pay very much attention to a lot of empty clothes? You have to put those clothes over some very attractive forms before they will really give their attention to it," and accordingly arrangements are being made, as I have said, to have some sort of a safety clothes model show tomorrow afternoon. We will hear more about that later.

Now, one of the very serious things that we are confronted with is the fumes from welding machines, and there will be a demonstration on that for each group, one for those of you who are specifically dedicated to the health side of it, and one for those who are specifically from the safety department this afternoon. The announcements on that will be made a little later by Mr. Drinker.

We have asked the yards and the men who are really shouldering this responsibility in the various yards on health and safety to give this matter serious consideration, and we do that in order that we will get those who are directly

concerned with the problems that are involved.

I want to welcome all of you here, and I want to tell you that I think that this is the first time that the ship building industry on the scope as broad as this has moved directly into cooperation and focused itself and its attention on two very specific problems that they have.

You want to remember that it was on this day just a year ago that the blow came at Pearl Harbor. The thing that left us stunned for a little while; the thing that no one ever expected would occur, and although we have gone along during the last year, striving here and striving there, most of us were doing it with our eyes right on the job before us, in order to develop things, and it is only when you stand today, a year from that day, and look back over the year that has just passed, and realize what a tremendous job that the shipyards of the nation have accomplished.

Our boys, to the extent of four millions, and I imagine that there are very few of us here who has not one who is close to us, are out in the uniform ready to protect the things that we hold so dear in this country.

We are building the ships to take the ammunition and the supplies to the manpower of the nation, and it has been restricted and reduced in such a way that we must make sure that the farthest possible use must be made of every one of us who are able to work on the home front.

With that in view, we are dedicating this conference to the purpose of promoting the greatest individual efficiency in shipyards throughout the country. Our whole objective i based upon production, because everything else is subsidiary to that, but we must remember that production in this struggle is something of a long-range nature.

This is not going to be a short struggle that we are in, as everyone realizes what odds we are up against, and if we are going to be in a long drawn out struggle we have got to have men who are physically fit and we have got to keep them physically fit, and we have got to keep them from the perils that will impair their productivity.

I again want to say that you are welcome here. I hope that we will have an opportunity to meet each other personally, and discuss individual problems as we go along, but time with us, especially in these days, is very short. We hope to wind this conference up tomorrow evening, and as for the general program at the present time, I think I will just sketch that now.

First,you will hear from Mr. Drinker with respect to the minimum standards so far as health is concerned.

Next, you will hear from Mr. John Roche with respect to minimum standards so far as safety is concerned, and next you will hear from Mr. Jack Wolf with respect to the training program.

Then, we would welcome a word from the representatives of the Navy, Commander Carlson, and Mr. Desjardines, and then I think the time will be ripe to separate for the afternoon session into two groups, where you yourself can study what is being presented to you and find out if in the papers that have been distributed to you anything is whacky, or anything is off the beam, and let us all sit down together and work out for ourselves from the wealth of experience and knowledge that we have here along these specialized lines standards that will be ones of integrity, that will be practical ones, that will be ones which will result in a promotion and accumulation of production, and when we have done that, all collectively, we ought to come together here tomorrow morning on a final agreement on the consensus of this conference with respect to those standards.

Once that is done, it is intended that the Maritime Commission and the Navy Department promulgate those to all of the yards, and ask that in the interest of efficient production, those standards be adhered to. We will have an organization jointly dedicated to the yards with Navy contracts and Maritime Commission contracts which will be applicable to all companies, both from the health and from the safety standpoint.

We want you to understand that we do not intend to do this job ourselves. That is basically your job. However, we

do hope that we can act in the role of coordinators and advisers. We want to be there to help you do that job.

Now, in the very first place, we want it understood that the standards will be the product of your doing, your own conference right here. If all those who come who have been invited, we will have representatives here from the Safety Department, from the Medical Department, from management, from labor, and in that way we will have a true cross picture of those who have the principal duty of really building these ships for us.

Now, tomorrow morning then it is hoped that we will be in a position to come to some agreement on what the standards should be. Tomorrow afternoon we hope that we will be able to display to you the most advanced styles so far as clothes for women are concerned, and as soon as definite arrangements are made on that, we will let you know.

From now on, I think that we might as well get down to work. If any of you have not got copies of Mr. Drinker's or Mr. Roche's data, they will available for you at the registration desk outside. I also want to say that everyone here will register so that we will have a record of the attendance.

Again, I want to thank you very much indeed for your attendance here and I want to wish you all success in the speedy and efficient formulation of these formulas for the protection of the health and safety of workers in our ship-

lle yards, because, after all, it is going to be your job. Thank you all very much, indeed. (Applause.)

Now, I want to present to you Mr. Drinker, who will talk to you on the minimum standards for industrial health in shipyards.

MR. PHILIP DRINKER: Have you gentlemen all copies of this minimum standards for the control of health in contract shipyards of Maritime Commission and Navy?

Now, it will be impossible for this to be the success we hope for the conference unless you in such brief time as we have, and we are going to designedly have plenty, unless you mill around and get to know each other and inter-visit. You come fromall corners of the country, and many of you have not met each other, and we wish you would throw formality to the winds and just inter-visit and have some unofficial talks about anything at all to do with the things that bring us here.

Will you turn first to Section A, page 1, and I do not intend to read all of this in detail, but I do hope that those who are especially concerned with the medical end of this, will take time to go over it roughly now, and then in detail this afternoon and this evening.

On the first few paragraphs there probably is nothing especially controversial, but as we go down the page there will be, notably under physical facilities, item 2, under the

Roman numerals, we suggest that substations for first aid be within a distance of about 400 yards for anybody, so that a man would, in an emergency job, not have to be taken furth than that, or if he could walk, he would not have to be requested to go farther than that himself.

We do not wish to imply in this that we intend to be arbitrary and go out and measure the distance. We certainly do not expect to do that.

The doctors and nurses and ambulance facilities are more or less according to the accepted practices, and I think in many yards they are already established. If the yard beats these suggestions that naturally is no cause for unfavorable comment. We favor it very warmly.

On page 2-A, one of the first faults that we found with the maritime yards, - and it is not true of all of them, - but of some of them, and that was the records and forms that came to the Maritime Commission. We thought that those records and forms were very poor, and they are being changed, and that will be discussed in some detail in Mr. Roche's section.

The suggested forms that we would like to see filled in now, and which in many cases have not been filled in, are any such form as this discussed in 2-A. Now, we know in an emergency we do not want any form filled out. When a man is badly hurt, you do not want him to fill out any form in or-

13e to bring him to a doctor, naturally.

3 Item 1 is a form authorizing the workman to report to the medical department for examination or treatment issued by a foreman or leading man or other supervisor. This shall show time of issue, arrivalat dispensary, discharge from dispensary and return to work.

In many cases, now there are no records in the yards of men who go to dispensaries for minor ailments. They cause loss of time, and in most cases we have no way of showing it, and no way of comparing with another yard for loss of time on any such basis. That is not true in every place, but it is true in a great many of them.

The filing of records with the medical department and the safety department in many cases is not good at all, and it would be a decided advantage of all to see that that is good.

We would like to have the safety and medical departments to have the same records of any accident, injuries or illness, and that they have that information given to them promptly.

Under examinations we urge very strongly what might be called a pre-placement examination for employees. This does not mean an examination in advance of hiring necessarily, but when a man is hired he should be examined to see that he is put in the job for which he is physically suited, and not one

for which he is physically unsuited, which may do him harm or harm to those with whom he works. We feel that periodic check examinations should be given to the men in all jobs where the men are doing something which is hazardous or which is a risky job, either to the men themselves or to others. I have reference to crane operators, locomotive and hoisting and portable engineers. It certainly should have periodic physical check-ups, and now in many yards they do not have that. We urge in the strongest possible terms that there be periodic check examinations to men in jobs in which there is a definite health risk such as sand blasting, paint spraying, and certain types of radium and x-ray work.

Item 3 is that special examinations, such x-ray, serologic and urinalyses shall be given in the individual case indicated, and in accordance with local needs. Now, special examinations such as x-ray, serologic, and urinalyses would be asked by a doctor in any normal establishment, and we believe it should be here, but we do not think there is any need for us to give any cut and dried scheme that you should follow. They will vary with the place, and we think it would be a hindrance rather than a help for us to detail the procedure to be followed everywhere.

On page 3-A, air raid precautions, the amount of work that was done on that, and the preparations throughout the country was quite different. In some places it was done

completely, and in other places it was done rather haphazardly. It was more or less a matter of chance.

Now, we do not believe that our organization is in any position to say what precautions ought to be taken, but we do feel very strongly that the least the yard can do is to keep up to date and be sure they are acting in accordance with the wishes of the local army and navy officials. If that is done, there is no reason that we should criticize it, but by and large most of the yards we saw the emergency medical supplies, such as you would need in the event of an air raid, etc., were generally speaking all in one place. Now, that is not always true, but generally it is. So if there was a direct hit, presumably most of them would be destroyed.

The responsibilities of the medical services are, I think, more or less what would be expected, with possible exceptions of item No. 3. That, I do not think has been done in practically any yard we have seen, and is done in most modern industrial establishments, such as large factories. That is, it should be the joint responsibility of the medical and safety departments through the supply department to know the composition of paints, thinners, paint removers, and other chemicals used in the yard.

We have seen some astonishing sights from the health standpoint in men using a chemical which no one would knew the proper name of. They didn't know what they were working

with, and in some cases they were chemicals the result of a careless use would be bad.

Now, there is no reason why, if the Maritime Commissi and the Navy act as a unit, we cannot have what amounts to an enforced labeling, and that would simplify things a lot.

You may buy a can of something or other to thin paint with, and what we want to do is to make the manufacturer put the name of the ingredient on there. Now, you do not have to ask him to divulge the chemical formula, but you would save us a lot of headaches if that information was given.

Now, we have a laboratory on the west coast, but we do not want you to send in these chemicals for us to analyze. It is a devil of a job, and it is very easy for the manufacturer who puts the labels on there to give us that information. We do not want to have him divulge the trade secrets or his secret formula because there is no reason why we should have it, but instead of "Quick Acting Solvent 22," or something like that, they might as well put on the composition, say, 10 per cent benzoin, 80 per cent phenol, or whatever it is, and let us know what it is. That would save you a lot of trouble, and also it would save us a lot of trouble.

Now, the way to get this is if you gentlemen feel about it the way we do, we will just say it is the sense of this meeting, and that the Maritime Commission and the Navy feel

that this ought to be done, and we think we can put it through. We would have the strong backing in that case of most of the large manufacturing companies likewise, such as General Electric, General Motors, etc., because they are in the same boat, and they donot like these weird names in their chemicals any more than we do.

Now, I hope very much that you will give us your backing on that, and if you have any reason to disagree, perhaps when we get down to details or on that this afternoon, you can so indicate.

On Item No. 5, the future employment of women, and the necessity of making provisions in the meical set-up for their examinations and care, is perfectly obvious, but I do not think it is being foreseen in a good many yards as it should be.

Cafeterias and canteens. By and large in the Maritime and the Navy contract yards, they could stand a very lot of improvement. We saw few of them that would compare favorably that you would see in a modern manufacturing plant. What ought to be done about them from the broad national policy, we are not yet quite sure, but something certainly should be done. We would urge strongly that the medical departments examine food handlers in these cafeterias, and have a regular scheme for such examinations.

Also, that the medical departments inspect any cafeterias

18e

or food dispensing arrangement that the men use, and inspect them, the way they are done, and in regular army and navy work. Now, those inspections ought to be at scheduled times, and they ought to be very frequent, and they ought to be thorough.

The water supply, sewerage and waste disposal by and large, we had little fault to find with any of them. There were one or two exceptions, but in general they were well handled. But, we think those suggestions for inspection on page 4 should be followed.

The provisions for salt tablets, particularly in the yards around the Gulf, are important, and in plenty of the east coast yards in the summer weather.

Now, part of our set-up for the future work will involve the laboratory which will be at the Harvard School of Public Health, and there will be another one at Berkeley, California. The work that we want these laboratories to do at first is to help you out in examination of urine specimens, and infected blood poisoning.

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We propose to discuss in the medical meeting this afternoon procedures for carrying out such analyses and we will be ready, we hope, very soon to help you out with such analyses ourselves, and then to send somebody who can show you how to do them, if you want to set them out routinely. We know, or we can show you beyond any argument, I think, that in

practically all of the Maritime and many of the Navy operated yards know you are likely to get some lead poisoning, especially from welding on lead painted surfaces. As you know, it is pretty nearly routine procedure now in all Maritime yards to paint all metal surfaces as soon as possible, whether they have been erected or not, and very often the painted ones are taken out to the hull and welded in the proper position. The lead paint is not stripped off at that time before welding. The routine procedure is to weld with the paint on, and the heat of the arc gets rid of the paint, and the welding job is all done at one time.

There has never been any such work done yet industrially when lead poisoning has not resulted, and we think it is certain to result in the ship yards. The way to avoid it, obviously, is not to paint needlessly, and we are sure you will back us in suggesting to the Maritime Commission that steps be taken to reduce that practice of painting before it needs to be done.

We have no fault to find with ship construction in which a job is finished, and has been painted, and an inspector goes around and checks off, and says that that has to be rewelded. That sort of thing is inevitable. We are not criticizing that, but we are criticizing the needless prepainting, and we are firmly convinced that from the production standpoint that that can be easily stopped.

afternoon when we have a welding outfit going the procedures now adopted for sampling air, and it is a procedure that can be done by the safety engineers, or the procedures that our men will use when they come to visit you to check up on any such hazards as we are discussing here today.

Now, those sort of air analyses and checks need not be done often. We do not want to wish a needless chore on you that will interfere with more important duties for the safety engineer, and above all the last thing we want to do is to put through any restrictions that will slow up the ship-building program. If we can present to you the facts as we know they exist, why then maybe you can make suggestions yourselves to put through the things that you think are necessary.

The items under Section "B" on the use of safety departments in shipyards which has to do with respiratory protective equipment, and the like, we think that the respiratory program in the Maritime yards, and the Navy yards, have not been at all good. We would urge in the strongest possible terms that all yards now buy only and use only respiratory and respiratory protective equipment that has the approval of the United States Bureau of Mines Experiment Station at Pittsburgh. They have a laboratory that is especially adapted for this testing work, and they issue lists periodi-

approval.

We have seen material used of protective equipment in practically every yard which is not at all suited to the job. The most reliable consultant you can get on that today is the United States Bureau of Mines, which, of course, is a federal organization and whose information is open to all of you immediately.

We will have here, and show you this afternoon, and tomorrow, a respirator, or respirators which have such approval, respirators which give aid, adequate protection, et cetera, in welding of lead painted surfaces.

Now, there is an item on 3-B on sterilization of respirators which perhaps will be a useful scheme to you, and also you will notice in the last paragraph of the last page on 3-B, reference to the National Safety Council sheet governing the same thing more fully.

Section C is devoted to a very brief discussion of seven items of industrial diseases which is likely to occur in shipyards, or in many cases already have. The most important of them is the flash burn, foreign bodies in the eyes, and then probably lead poisoning. On page 2-C is solvent vapors, and solvent vapors can likely be eliminated by compulsory labeling of chemicals or can be cut down extremely.

ihs 3-C refers to zinc fume fever from welding galvanized metals.

The next section has to do with fiberglas, and then on 4-C, it has to do with asbestosis, and silicosis. The asbestosis is caused in connection with the handling of asbestos. That is not unlike silicosis in its effects, and we rather expect it to occur in shipyards, because we have seen asbestos being handled in installation work with little or no precautions.

Asbestosis, silicosis, lead poisoning from solvent vapors, and lead can really not be controlled satisfactorily unless systematic, periodic examinations of men are enforced. I might say, it is very difficult or practically impossible to control it by urinalysis. It has never been able to control it that way so far that I know of.

In Section D we have ventilation standards, the discussion of which would be out of order now, but we will discuss them this afternoon, and again tomorrow with any groups who are especially concerned. I know there are quite a few men here today who are very much interested in ventilation in ship construction, starting from the double bottoms, and going right on up, and there is nothing that we would like more than get into such a discussion with them. We will work that in tomorrow at any time you gentlemen see fit.

I hope you have made some notes on this. We propose

this afternoon for those interested in the medical aspects, to meet in this room at two o'clock, and those interested in the safety engineering aspects will meet with Mr. Roche in the American Room on the mezzanine floor at two o'clock. Then, at three-thirty o'clock we will shift and we will then give the same welding demonstration here, and ventilation to the safety group and Mr. Roche will go over his stuff to some extent with the medical group.

As a result of the conferences this afternoon, we hope that we can iron out perhaps most of the difficulties, objections, additions, or subtractions that you have to make to these proposed standards, and that tomorrow we can formulate it into final shape.

Mr. Roche and I apologize jointly for the fact that ther is a certain amount of duplication in his reports, and ours. Some of these things are safety engineering, and some are medical, and some certainly are both.

He is interested in preventing accidents, and disease, just as much as we are. So, if we do overlap, we have no apologies. You will notice that we demand a safety store and so does he, and just so long as you have that material available where the men can easily and conveniently get safety equipment, we have no objection. We do not care if it is in there four times, so long as we get the store.

The organization which we will have to control health

6hs will concist of two physicians from men in industrial work in the Navy yards. Dr. Sessions was with us this summer on this tour, and he will be one of them. There will be six men, three of whom you will see this afternoon in the demonstration that we propose to give. They are engineers, and chemists trained especially in industrial medical manner on the prevention of disease.

One of the doctor's headquarters will be in the east, and one in the west, and there will be two ensigns to cover the east coast and one to cover the west coast, one the Great Lakes, and one the Gulf, and I have to cover all the rest of them, and this gentleman (Mr. Ring) is our boss.

Now, our job is to help you. We will be available to come and see you and help you at anything that we can. We have had a couple of requests from yards now to go back on specific investigations, to see the hazards which they thought that they had, or did have, and to help tell them ways of improving conditions, et cetera. That is what we are for, and that is what we are being paid for, and if you do not make use of us, or if you do not make us work for you, we will be self-liquidating and resigned. That is what the organization is set up to do, and if you do not make us work, then I think that that will be your fault. We can do it, and we would like to do it.

Now, I beg of you to make notes and perhaps save your

questions, but get this ready for this afternoon. Thank you very much. (Applause)

CHAIRMAN RING: Well, I just had another demonstration of Harvard philosophy that has always been puzzling to me. If I am not mistaken, I heard Mr. Drinker just now say that Mr. Roche and he wanted to apologize jointly for overlapping, and two minutes later, he said, "If you find any overlapping there, we have no apologies to make." Sooner or later, as years go on, I will find out how to assimilate those things.

In the meantime, I think we ought to hear from the Navy who is just as much interested in this program as the Maritime Commission, and which is bearing an equal, if not a heavier brunt of the load and the expense. The cooperation that has been extended by the Navy has been something that has been fine, especially in Washington, where sometimes they find one agency and another quietly and politely fighting with each other.

I want to present to you at this time Lieutenant Commander D. E. Carlson, who is the Navy representative on safety and health.

LIEUTENANT COMMANDER CARLSON: Thank you very much, Mr. Chairman, but I would like to say that Mr. Desjardines is one of our chief engineers, and I just want to say that we will cooperate with you to the fullest extent. However, we are going to sit back on the sidelines and let Mr. Ring boss

8hs

the show. We are just here in an assisting capacity. There are just a couple of things that come to my mind at this time and you are just as much affected by them, and I have reference particularly to the manner in which we are being hit by the draft. You are going to have a special problem that you never had before, because you are going to have the lame and the blind, and not the female coming to you. Have you ever tried to put safety shoes on a girl? Well, you are going to have to do that very shortly. All I can say is regard to that is to try to get them. You are going to have trouble getting material; you are going to have especially considerable trouble in getting men. I know that we are having a dickens of a time now finding safety engineers, doctors, et cetera, because the doctors are practically all gone. They are all in uniform. We have got problems which each individual is going to have to solve himself, and the biggest help that we are going to be able to give will come from the Bureau of Medicine and Surgery in the Navy Department. We are going to loan the necessary officers to the Maritime Commission to carry along on that, and in that connection, I would like to present to you Commander Burton of the Surgeon General's office.

COMMANDER OTTO L. BURTON: The only thing I have to is that the Surgeon General's office has promised all the cooperation that we can give to you and any medical help that

9hs they are going to need on this program is available. So far as the program is concerned, I have nothing to say about that It sounds very good to me. (Applause)

CHAIRMAN RING: We all know the difficulties that have been caused so far as eye trouble is concerned, and we know that is one of our principal problems. In arc flashes, when a burn occurs, and the result is that you put a man's eye out of commission for a while, I would like to say that the organization in this country which has taken one of the leading roles in safety measures, so far as eyes are concerned, is the National Society for the Prevention of Blindness. The representative of that association is here today, and she is probably one of the leading ophthalmologists in the country. We have prevailed upon Dr. Hedwig S. Kuhn to come here from Hammond, Indiana, to give us a few words, and we have understood that Dr. Kuhn will be here for any specialized assistance which she can give during the entire session. I want to present to you at this time Dr. Hedwig S. Kuhn.

DR. HEDWIG S. KUHN: Well, I do not know that there is much I can say after the reference to the lame, the blind, and the women all in one sentence. I do not know whether we are going to be able to help you very much or not, but we are going to try, and I think it is not only just a question of goggles, but the actions that come from eyes after they are protected from goggles that I hope we can get across to

10hs

you in the next couple of days. I would just like to say at this time that the Joint committee of Industrial Ophthmologists, which is the official group of the A. M. A., and American Academy of Ophthalmogoists are back of this industri work that has been suggested, and which it has been my privilege to be associated with, and I hope that I can be of some useful assistance to you. Thank you very much.(Applause)

CHAIRMAN RING: I now take a great deal of pleasure in presenting to you Mr. John Roche of our Safety Department.

MR. JOHN ROCHE: When we started this program a few month ago, Dan Ring told me something he did not tell you. He said, "Roche, our job is to build ships, and we are not building as many ships as we could build if we were not having the accidents that were occurring in shipyards today."

Now, we have not absolute and final records on the national shipbuilding situation in this country today, but we have been able to prepare estimates, and the National Safety Council will shortly come out with a statement that if the accidents had not occurred, if the time had not been lost, if the men had not been killed, we would have built 101 more Victory ships in the past year, and how we could use them right now.

This survey was undertaken then with the idea that we were going to be practical, that it was not going to be an idealistic scheme, cure-all, like some of the other things that have been wished on the shipbuilding industry, and a lot

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of other industries in the last few years. So, what you get today, and what you will look at this afternoon in the safety part of this meeting, and the health part, are our ideas of minimum standards, not complete accident prevention programs, but the standards, the basis upon which you can build a sound accident prevention program in your shipyards.

Let me say a word about the type of yard selected. We did not go to the worst yard; we did not go to the best yard; or to the biggest yard, or to the smallest yard. We tried to get a representative sample of the shipbuilding industry. We took from those samples the best things that they had in their organization, and the plans for facts that I propose for the minimum standards are the best things that are going on in the shipbuilding industry today, as far as I was able to discover on that survey, based on my past experience, based on my conversations, and talks with shipyard men.

There is a definite need for standards. I have run into every conceivable type of accident and record, every possible type of safety committee, every possible type of designation of responsibility to a safety department.

Now, the safety man might be anything from a shipping clerk to a vice-president. He might be the yard superintendent, or as in the case of some yards, he had a definite and specific responsibility for the safety and health for the men in his yard.

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So, we are recommending standards. We do not say, however, that if your yard does not comply with the standards in every respect, that you must arbitrarily change from what you are doing to what these minimum standards suggest. If you are doing a better job than the standards ask for, then continue to do it. If you are not doing as good a job, then the least that can be asked is that you bring up your safety department and health department and hygiene work to the minimum standards that are required.

Now, I tried out this program on a group of guineapigs and I see a lot of them are here, that is, the proposed minimum standards for the safety in shipyards. There were 13 men from all sections of the country at that meeting, and we held a meeting in Chicago and discussed these proposed minimum standards and at their suggestions certain corrections and changes have been made in the proposed standards. They are included, so that you have right now in your hands, what represents a pretty good cross-section of opinion of the shipbuilding industry on the type of standards they think should be minimum.

Now, let me say first, the dream of every safety engineer is to sell his management, to get his management actively in back of him, and to make management believe that safety is just as important as a safety engineer knows it is. That is one of the toughest jobs that a safety man has in any

s industry.

These minimum standards, while they will not guarantee to do that for you, certainly call for a specific action on the part of management. They call for active and interested cooperation, demonstrated by certain activities that will show in no uncertain way that management is definitely in back of your yard program, and with that cooperation and interest demonstrated, your job is going to be considerably easier.

The safety department has outlined a program, and we will have some discussion on that this afternoon. We have tried to designate the size of the safety department based on the size of the yard. We have told them of their responsibilities, and what they shall do and how they shall do it, according to the minimum standards.

Now, they are not to be shipping clerks, but safety directors and safety engineers, and they are to take the responsibility and prevent accidents in the yards.

We are suggesting, too, certain types of report forms which you will find in the back of the leaflet here, and they are too elaborate to go through at this time, and they will be discussed this afternoon.

We have specified the type of committees. However, again let me stress minimum standards are what we are referring to. There is a policy-forming committee, or a central committee,

14hs a supervisors committee, and the various inspection committee. Now, if you have more than that, use them, but if you do have a policy-forming committee, and I regret to say that many of the yards do not have them, then you should have one, and get the benefit of management's participation in your deliberations upon safety problems, which arise in the yard.

We specify employee training. Let me say this: I visited training schools in every yard in every section of the country, and they are doing a swell job of craft training, but they are doing a lousy job of safety training. I walked into a welding school and saw the instructor working without a helmet. I investigated the records of shipyards and found that men who had taken craft training in those welding schools were 50 per cent more likely to have eye flash than were the men who did not have training. I found in one yard that there was more time lost due to eye flash than all the rest of the lost time from all of the other accidents in these yards from anything else.

6 I found one yard where there were two days given off for every eye flash, and in other yards all they did was to get treated. We have no standards, and we are losing too much time. Why? Because craft and safety training are not properly correlated, and they must be. I am not going to elaborate on that, because that is Jack's job to do that, but I want you to know that there is that in the standards,

15hs

and it will be elaborated on considerably. The Maritime Commission in setting up the standards, said that you must not set up standards, but give them tools with which to work, and the first thing to do is create an organization, and that is not going to be a typical governmental organization. We are not going to hound you to death with two or three hundred inspectors, but we are going to set up a consulting organization which will be available to you, and which will be able to give you the help which you need when you want it, based on your monthly reports to the Maritime Commission. If your yard shows a need of help, you will get it, whether you want it or not, and I can see some of you smiling. Well, all that that means is this: that we are going to review your records, and if you are above a general small industry average, then you can expect to receive a visit from the Maritime consultant, and have him offer his assistance to determine what is wrong, where your accident record is up, and what you can do to get the accident record where it belongs.

Another thing, we are supplying the tools for you in addition to the organization, and one of the tools will be specific safety posters. I was never so inspired in my life as when I walked around the shipyards and saw such inspiring posters as "Don't Have An Accident", "The Best Safety Device Is A Careful Man." That was all the way up and down the line

1 ths from the building of ships, to the patriotic angle, and every thing else, but nothing on specific safety practices which they need. There should be specific posters for burners, stage riggers, crane operators, et cetera.

For example, we have a man out in the Bay area in San Francisco where we have a variety of shipbuilding, making a study. He is taking pictures, making sketches, and he is becoming thoroughly familiar with shipbuilding operations. That man is an artist, and a photographer. You can expect within a short time now to have specific and definite types of posters for crafts on safety practices.

In addition to that, we will later on furnish you with safety instruction cards, and such other material as you may need. In addition, we will have sound film strips based again on specific unsafe craft practices.

You all know about goggles. All I heard up and down the Pacific coast was, "We are 5,000 pairs short. We need them, but we can't get them."

Another yard says, "We are 10,000 pairs short," or they will say, "We need hard hats," or, "We need shoes, we cannot get them, and we are begging for them." Well, the Maritime Commission is doing this for you. This is not a promise, but a hope. We will go before the War Priorities Board, and endeavor to secure better priorities ratings f the manufacturers of safety equipment. The War Priorities

17hs Board generously gave the shipyards the best possible rating they could get, and then they turn around and give the safety equipment manufacturers a double X rating, and they cannot get the stuff to make the things you want. We are going to help you on that, and we are going to ask you to get down on your knees and pray very hard when Roche and Ring and Drinker go down there and try to get a better rating for the manufacturers of equipment.

Other things covered in the proposed minimum standards are safe practices for welders. Now, again those are minimum standards. I did not intend to go through, and I do not intend to go through the whole gamut of work practices for the welders, the burners, or the chippers, or the practices of housekeeping, or handling of tools, but we have given you what we have found as a result of our study, because we believe that they were the things that caused the accidents in shipyards today.

Now, if we have left anything out, we hope that you will say so, but the things that are in there have caused accidents, and caused a lot of them, and those of you that have studied your records know just how many accidents they have caused.

We propose later on to issue minimum standards for staging of scaffolds; we propose later on to issue minimum standards for fire protection, and they are not arbitrary

standards, but only suggestions and recommendations. The consulting force of the Safety Division of the Maritime Commission will be glad to cooperate and help in every way that it can in the development of such standards in your yards that will either meet or better Maritime standards.

One of our biggest problems was women. They always are. More and more women are being taken into shipyards. I have heard all kinds of figures. They say eventually that eight per cent, 24 per cent, 36 per cent will be in shipyards, but no one really knows how many women we are going to use. All of the 38-year-olds and over, now, have been eliminated from the draft. Well, what does that mean? It means the younger and more active men, skilled or non-skilled, are going to be taken for military service. We hope not, but it looks as though they will, and that means that more women must be ready to step in to fill their places.

Training will have to be developed for women, and the question is will it be different from that given to men? What shall be included in addition to the training that we are giving to the men? Those are just a few of the problems that we are faced with women in the shipyards.

You all know the common problem which I won't touch on here. That will take care of itself. If there is any doubt about it, see me after the meeting, and I will tell you a couple of stories based on that.

19hs

However, one of the biggest problems is clothing for women. I wrote to a lot of manufacturers for work clothing. In fact, I wrote to 159 of them, and what you see here now is a representative sample of the work clothing being manufactured for women. But, what are some of the problems? Here is one for you to consider. Oftentimes, you have seen in your own yard, if you have women employed, when a woman welder wants to move over to another job, she will coil up her hose, put it over her shoulder, and then every few steps she would take, she would have to hitch up her pants, because the women are built a little differently from the men. In other words, the women are wearing men's clothing. The man, if you will picture him in your own mind, has a different figure from a woman. A man's body is built straight up, and down, and a woman on the other hand is built in this manner (illustrating). Do you see what I mean? Well, as a result of that, the pants do not stay up.

Another problem is, that most women shave under the arms. They are wearing rough clothing, and they are wearing clothing that is of a dyed material, and we are not familiar with the specifications. It may run, and it may not. We are afraid of a dermatitis arm infection. Well, what should they have under their armpits? Should they have an arm shield? Should they be built in? Should they be supplied separately? Should we ask them to bring them from their own

20hs

home? Should we supply them? That is just another one of the problems that is going to face us in the future.

Another thing, many times women disappear from their jobs for about an hour. Well, there is a reason for that. They are all dressed up in their uniform, and here is what was described to me in the shipyard in Brooklyn.

First, they put on a suit of long underwear, then a pair of khaki trousers, and women being as neat as they are, will put on something over that, and I do not know why. Then they have to go to the office, and they are gone for about an hour, because it takes them about that long to get their clothes off, and go to the office, and return, and then put them back on again. The manufacturers have not recognized the need for some convenient arrangement for women who are working in shipyards, and brother, if you take an hour for each woman in the morning and once in the afternoon, and multiply that by the number of women you have in the shipyards, and the number of shipyards you have in the country, you will have lost a lot of hours in the building of Victory ships, which is an essential activity at this time.

So, we have got to establish some standards there.

Shall clothing have cuffs? Shall there be cuffs on trousers? Shall the clothing be made to hide the natural curves and contour of the women, so that they will not be exposed to the jibes of the men in the yards, or shall the

21hs clothing be designed so that you know it is a woman and know who is working alongside of you, or near you? Shall the clothing be designed by a stylist as one of these hats down here are designed by Dache at a considerable cost? In that
7 way, the women will feel pepped up and their morale raised, because they feel that they have style work clothing to wear There are a lot of problems. Shall they have flat seam pockets, or any pockets at all? Shall the clothing be flame-proof? If it is flame-proof, who should do it, the shipyard? Who shouldpay for the worker's clothing being made flame-proof, the worker or the shipyard? Should there be some cooperative agreement? Those are only a few problems with women.

What about separate lockers and locker rooms for them? What about protection of their locker rooms? What about transportation? What do you do with them at night when they are working on the graveyard shift, or the swing shift? Thos are just a few of the things that you will have to be thinking about.

Now, another one of the tools we are going to give you is a safety contest. Every person I talked to on this tour, and every person I talked to since, has been interested, as has the Maritime Commission, and particularly John Moody, in a national shipyard accident prevention contest for which suitable awards will be made. I have 100 copies of suggested

rules for such a contest on that table, and I wish those of you who are interested, would get copies of those rules and study them, and please write me wherein you think they sh d be changed, so we can get this contest under way starting January 1, and continue up until December 31, 1943.

Now, in the safety setup, as I said before, we were not going to build up an organization of about 500 men to come around and plague you. You know they are investigating some of them now, and it probably would not be long until they starting investigating governmental organizations to find out what they are doing, and getting paid for. We are going to have four men, one in each region, who will serve and act with you as safety consultants, and assist you in your safety problems. Each of them have lots of experience in shipyards, and plenty of experience in safety, plus additional training that is proposed to give them before they actually go to work in the district. They are at your disposal, and you are urged to use them, and as I said before, you will use them whether you want to or not, if your accident record does not come up to the general industrial averag

Now, this afternoon, we will meet in the American Room at two o'clock for all those people who are interested in safety, and I am going to ask you to please bring with you your minimum standards for safety with such corrections and suggestions as you wish to have included in the discussio

One of the things I have left out I see, and I have it here in big capital letters, is the safety supply store. We are definitely recommending that a safety supply store be installed in allyards. I know you are smiling about that, but we will stand behind that recommendation until hell freezes over. We do not believe that men should be compelled to go into the city and pay retail store prices for safety equipment that is needed for specialized work. It is our opinion that they should be given the opportunity to purchase that material in the shipyard, or if not, that then to have it issued as the property of the shipyards.

Now, that may sound like a rather tough recommendation, but in one yard I know of, they could not get safety equipment for their men and they were not able to keep it on their men, until they adopted the practice of buying all of the equipment themselves and issuing it on check. Then, they were able to give them the equipment.

Now, there is a certain turnover in shipyards. That has been discussed from time to time, and they were then able to get the old equipment back, sterilize it, and reissue it to the new men coming into the yards, and there has been only one slight drawback to that at the present time, and that is that the men refused to turn in the hard hats, or refused to turn in the goggles, because they knew darn well that the next shipyard they went to they could not get them, and they

24ha conveniently lost them and paid for them. I know that that has happened to a lot of you.

Those are about all of the remarks I would like to make on these minimum standards at this time. This afternoon, we will take our coats off and our hair down, and really go to town on it. Thank you very much, gentlemen. (Applause)

CHAIRMAN RING: I was just exchanging a few side remarks with the representative of the Navy during Mr. Roche's talk, and there is something that occurred there that is very, very outstanding. The Alabama, the battleship, they tell me has been launched, or it has been commissioned, after about 24 million man hours, approximately, has been launched without a single fatallity. That is quite a record. (Appl )

The second thing that I learned, and I was almost bowled over, is that the New Jersey has been launched, and not yet commissioned or shipped out, but has been launched after about 18 million man hours, and also no fatality there. (Applause)

Now, that is quite a record. And I thought you would all like to know it, because the Navy has in their yard, presented a very strong appeal for safety, and safety precautions. It seems that it is bearing results.

Now, we have with us Mr. Wolff, who is an expert on training. I am calling them all experts, because any exp should be called an expert. An expert apparently is somebody

25hs

who feels that the general public is taking him at too high a value simply because he can talk in terms that the general public cannot understand. Along that line, with respect to the assignment of rooms to this afternoon's session, I think that Drinker is about the best expert I have ever seen.

Jack Wolff has been in this training business from scratch, and he went from nothing up to twentyfive or thirty thousand people. He knows the picture on training, and he has been making tours all over the country, and after he has been in a plant, I might say about three or four days later, somebody calls up Washington and says, "Wolff was up here a few days ago telling us about the training setup, and I wonder how soon we can get him back." We ask them what they would like to have him back for, and they say, "There are some other things that we want to ask him about."

So, these fellows when they are out in the field putting something over, that is one of the finest tests I know of when they are asking for him to come back. That has happened several times, and I want to present to you at this time Mr. Jack Wolff.

MR. JACK WOLFF: One of the things that perhaps is most interesting, and perhaps means the most about what we have been listening to today, and what we are here to work on, is that finally the recognition has come to those in places of responsibility that it is a human element that we have to

6hs

depend on most to build these ships. When we speak of safety and health, we do it because no matter how much equipment you have in your yard, no matter how much material is over the on the sidetrack waiting to be lifted on the hull, it is the human element that controls the amount steel that is necessary Does that check?

Now, experts can come along, as we have heard them this morning, and they can outline minimum safety standards, and they can outline minimum health standards, and they can set them up, but they cannot make them work by themselves. It takes something more than that, and until it works, it is not worth a damn. It has got to work before it will produce ships

Now, these safety standards can be set up by you folks who are experts in safety. Our management can be sold on am and can issue instructions telling the yards that those safety standards and those minimum health standards are to be followe They can give directions, but that still does not do the job, because we have seen a lot of orders issued, and they have been either forgotten, or definitely violated, because somebody thought that they were just somebody's wild idea. We can do something else. We can put posters up and John Roche mentioned posters.

Now, it is very interesting about posters. We see poste for a little while, and pretty soon we do not see them at all. It is just like a man who spilled some gravy on his vest. he

27hs first day he was very conscious of that gravy spot, but after the second or third day, he did not notice it at all, but all of his friends did see it. Now, that works, because it is easily checked. All you have to do is put a sign or a poster up in a prominent location, leave that poster there for a few days, and then change it, and repeat that frequently, and then make a survey of your yard, and ask any man you come to what is on the poster that is out there on the main gate, the poster that looks down on you as you come into the yard. If you get two per cent of the men who can tell you just what is on that poster, figure that you are lucky, because you have got a higher percentage than you are expected to get. We have tried that already.

Now, that does not have to do only with safety posters, but we have asked them the same thing about fire extinguishers We have asked them where the nearest fire extinguisher could be located. For example, if this room caught on fire, where would you go for the nearest fire extinguisher, and out of 50 or 60 men in a series of conferences, supervisors, mind you, there was not a one of them who knew where he could go to find a fire extinguisher, and every one of them passed within two feet of one before coming into the room.

So, we cannot depend too much on posters, and on signs, because pretty soon we become immunized to them, and we do not see them any more.

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There is another thing we are up against when we formulate our ideas and formulate standards and programs. We make them just as air-tight as we possibly can, and then we put them out in the field, and we say, "Brother, here it is, this has been worked out by the brains, and this is what we want you to follow. It is all right here, and everything is outlined to you on the safety and health programs," and then we go on down with a list of the health and safety solutions, how to get around those hazards, and then we say, "Now, think safety, and think health", but how can a man think safety and think health when somebody has just given him all of the answers?

We no longer think about a thing that we do not worry about, or that we do not wonder about, or that we are not curious about, so that as soon as we get the answers we stop thinking about them.

It is almost like the International Business Machines that we see wherever we go. In other words, there are a lot of International Business Machines that just do everything automatically a hundred times faster than a human can do them, and they are all over the room, and all around the room you will see a sign, "Think".

Well, there is nothing more for those boys or girls to think about, because the machines do it all, and they do not think, and they become automatic, unless you call wonderi

me to turn down all those who could not do everything, - women and men.

CHAIRMAN BRINKER: They had to be able to do anything at all?

DR. PRICE: They had to be able to do any work that was required.

CHAIRMAN BRINKER: I do not think that is general. That probably differs with the locality.

DR. W. J. REID, (Delta Shipbuilding Company, New Orleans, Louisiana): We have that down at New Orleans.

CHAIRMAN BRINKER: Shall I take up No. 5, the matter of employing women? We mentioned before that that really has to be suggested; the physical facilities that are necessary will have to be suggested by the yard, or, rather, perhaps by the district rather than the yard, but it certainly will vary with the district. Do you gentlemen feel we ought to formulate some policy with regard to item No. 5?

My thought was that the employment of women in the shipyards is, relatively speaking, new, and we do not know quite how it is going yet. All we know is there are going to be a good many of them. What the percentage will be in the next six months or year is unpredictable. Should we make that more definite? What is the feeling?

DR. McCOY: I think it should be made more definite, because in taking a general treatment room, you have to sepa

do not think so.

DR. ADAMS: On the question of absenteeism, I should like to hear the expressions of some of the other members here. We never got into a definite routine or formula of checking on that. How are you going to know whether these men are off from sickness or just plain cussedness? We run into a certain type of man who wants only so much money each week, and when they earn that much money, then they lay off until the next week. I would like to have an expression as to how you are going to check up on these men.

CHAIRMAN DRINKER: I would like to know myself.

DR. PRICE: We require every man who has been off — it used to be three days, but now it is one day — to bring a slip from the doctor who treated him saying he was ill while he was off.

CHAIRMAN DRINKER: Did you hear that, Dr. Adams?

DR. PRICE: I think one day is not so very good. I think three days is about right.

On this point about pre-placement examinations, I have just the opposite problem from these fellows on the West Coast. I talked with the general manager of the yard about placing men who could do some work, but not other work, and he said he did not want me passing on what sort of work they could do; that all shipyard work was heavy; and all he wanted to know was whether they could work or not. In other words, he wanted

our safety inspector turnover is about as high as it is for our group. We just get one man well trained in safety and accident prevention when he has an opportunity to earn something like thirty or forty cents more an hour on a journeyman's job, and he leaves us, and we have to start all over again. The value of well-trained safety inspectors is inestimable, and they will unquestionably pay for themselves many times, and I would insist from a medical standpoint the Maritime Commission take action on it.

CHAIRMAN DRINKER: We agree strongly. We have heard the same complaint everywhere we went. I am very glad you brought it up.

MR. RELLER: How about including your medical attendants, too?

DR. RIEKE: We have taken the viewpoint they should be paid at least the yard average. Our nurses are being paid just two dollars a month more than our janitors are on the Coast. The hospitals are screaming that we are hiring their help away from them. We are not. The shipyard wages are the things which are exhausting the medical personnel in the hospitals. That is a thing beyond our control. It is a point that the Manpower Commission should certainly study, simply from the standpoint of maintaining medical personnel in hospitals in relation to defense areas, as everywhere else. I do not know whether that has to come from this group or not. I

not intend to let up on it.

MR. WOODELL: Even though it is not labeled, they could by letter inform you.

DR. GARFIELD: Dr. Drinker, this may not be accurate, but I understand the Navy uses paint that does not contain lead.

CHAIRMAN DRINKER: That is right. They use zinc chromate instead of lead.

DR. GARFIELD: Could liberty boats be taken care of?

CHAIRMAN DRINKER: From the standpoint of the shipping instructions, I am afraid we could not get it. There is not enough. Technically, there is no objection, but it is a supply problem. I do not think it has to be. I think the Liberty type ships can continue using red lead paint safely.

DR. DIKE: Dr. Drinker, this is a personal problem. I do not know whether it comes in any further on here, in our safety department. It is in regard to point 2, "Close collaboration shall be maintained with the safety department especially in regard to records of accidents and absenteeism."

I should like to see this group -- and I think our safety engineer is asking the group upstairs -- have the Maritime Commission authorize and insist that safety inspectors be paid a wage which will be compatible with their position in a shipyard, which is not that of an underling.

difficult. You can now call the attention of your supplies department to the fact that they should not buy these substances without knowing what they are, and that in itself will make them write back to the supplier and say, "Is this stuff toxic, or is it not?" You know the chemicals, by and large, come from large firms with a pretty good medical set-up, and one of the things they have done is examine these products they sell, and even though they cover them up by trade names, the chances are they can tell you what their toxicity is, and will be glad to do so, especially when the weight of the Maritime Commission and the Navy is put on them.

We do not intend to let the thing drop, but at the same time, we do feel that from now on the medical and safety department should feel that it is up to them to know what is being used in the yards, and that they are being used safely. Is that unreasonable?

MR. WOODELL: Is it your proposal that that analysis be given by the vendor?

CHAIRMAN DRINKER: Yes.

MR. WOODELL: On the package as well as on some label stating as to what it is?

CHAIRMAN DRINKER: We could not put that through, probably, because many of these things are all made up, and they have no labels. It will take a little time, but we do

making any trips around the yards, because it physically was impossible. Whether that can be done or not, I do not know, but we feel very strongly that it ought to be done and that the yard would benefit immeasurably from it.

The close collaboration maintained with the Safety Department and the Medical Department on the records and accidents I hope very much we will achieve as the result of improved accident forms.

Item 3; in most yards, as I pointed out this morning, that has not been done at all. Neither the medical nor the safety department considered it their responsibility to know what chemicals were being used in the yard. If they are not responsible, I must say I do not know who is. We propose to enforce that and state that it is the consensus of these gatherings that labeling be put on chemical substances, on paints, thinners, and the like. If you see the chemical names on them, in many cases, it will save you a lot of work. How do you feel about that, that enforced labeling? Is that agreeable?

DR. RIEKE: Yes.

CHAIRMAN DRINKER: We will try and put it through if it is, and we will state it is the feeling of this meeting that that ought to be done. That will save us from making a lot of analyses which are time-consuming and often extremely

where it involves a large number of men. In one case there were some twenty men killed, and the radio station, the local radio station, broadcast that they had several hundred killed, and the doctors started driving in from as far away as one hundred miles, and hospitals in the local communities were left without doctors.

That brings up two things; first, that they need to have an understanding with any local radio station that there will be no broadcasts of any disasters, whether they are bombings, or whether they are explosions, or whatever they might be, except when given by authorities; and secondly, that certain doctors in hospitals in the town upon which you are depending to take people that are injured from the plant will remain at their posts and not come to the yard.

CHAIRMAN DRINKER: The point we want to make in this is especially shown under item 4, under air raid precautions, that you be sure you are in keeping with local army and navy regulations, because in those yards we have criticized, I am pretty sure they distinctly were not. They were going their own way, and they just had not bothered about it.

Responsibilities of the medical service. On Item 1, "Frequent inspections of the yard by the medical staff shall be required," I found in some yards it was done with a great deal of care and in others, where the physicians frankly were brought in from outside and taken from busy practices,

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examination. Those two men gave four hours a day, and sometimes examined as many as four hundred men, and did a splendid job.

CHAIRMAN DRINKER: Gentlemen, we still have a good deal to go through. We are not trying to side-step any of this. We will go on with this program, and we will have this evening for informal discussions, and also tomorrow.

MR. O'CONNELL: Is this committee just to report or make a resolution on the periodical examination after the man is employed?

CHAIRMAN DRINKER: Both. That makes a third item. I will speak to the committee afterwards so we will be sure we are straight on the assignment.

Now, turn to Page 3-A, the air raid precautions.

We would like to feel that the yards are facing that possible problem and not evading it in any way. Beyond that we do not intend to go. In a great many of the yards that we visited, if you asked if they were doing anything, you would meet with really totally blank looks, and in some of them the precautions taken were very elaborate and in keeping with those you find in any of the big Navy yards. Probably something in between is reasonable. Is there any discussion on that?

MR. BECK: I have found that often at yards they think little of those things until the first accident happens

of opinion as to what to do about that, and also the shortage of physicians in the yards.

MR. WOODELL: Would that have to come from the committee?

CHAIRMAN DRINKER: I think it would be in order to have it come from the joint committee as representing the physicians in the shipyards.

I suggest as a committee Dr. Rieke and Dr. Spencer and Dr. Croft. Is that agreeable?

DR. CROFT: Yes.

DR. SPENCER: Yes.

CHAIRMAN DRINKER: We would ask you, then, to consider three things; one, the shortage of physicians in Navy and Maritime contract yards, and to make a statement as to what you think the Maritime Commission and the Navy ought to do about it; two, pre-placement physical examination.

DR. RIEKE: Let me ask this question: Is the feeling general that you have enough physicians or not enough to do the pre-placement examination, or that you have not enough even for dispensary work? I would like to have an expression.

DR. SPENCER: Before I came to the yard, there were two men who gave four hours a day, and the extent of their examination was an eye-opener to me. They did serological tests, blood typing, and gave a pretty thorough physical

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Dr. McCoy and myself were just talking about whether welding fumes cause bronchitis or just aggravate it. That is just a personal opinion with me and Dr. McCoy, and you will get two sides of it wherever you are.

I think probably without exception that chest X-rays would be indicated from a public health standpoint and the standpoint of the welfare of everybody that comes into a shipyard. I think there is no question but what pre-employment physical examinations are the proper thing to do, and I think Dr. Garfield's point is correct, that the Maritime Commission's prime duty is to see that we get the help.

I think it is now established that shipbuilding is the one important industrial need until we get enough ships to start shipping war products, and I think everybody, including the physicians, should insist on every possible medical care for ship workers.

CHAIRMAN DRINKER: How would you gentlemen feel if we appointed a small committee to bring in a resolution on this tomorrow morning? I think we are all pretty much agreeable on these items. Is that agreeable to you?

MR. WOODELL: Couldn't a resolution be formed right now for the committee to write a form or standard for physical examination?

CHAIRMAN DRINKER: I do not think we need the form for the physical examination as much as we need an expression

you you have got to get them if you want this to go across."

DR. RIKKE: Preliminary to making such a suggestion that we would so resolve, the one problem that the Oregon Shipbuilding and other yards in Portland are running into is this: Men are suing us for sums up to fifty thousand dollars apiece for permanent disability due to alleged poisoning of welding fumes. The question was raised: Do we need test X-rays prior to employment? I would say by all means, practically everybody that comes into a shipyard, if there is some possible way of doing it, should have them simply from that standpoint, or we are going to wind up behind the eight-ball just about a thousand miles on everybody that has a chronic cough, simply for lack of any evidence whatsoever as to what that man's condition was when he came into the shipyard. Now, that test X-ray won't prove anything particularly, but certainly it will give us something to refer back to, at any rate.

What good is a preliminary physical on the basis they are doing them now in the service when we run them through at the rate we are? Anyone who wants to demand that kind of a physical as to chest conditions is probably just asking for trouble. That is a very large question, that one point of chest conditions, from a medical standpoint. I am sure you are all running into it. We certainly are, and are continuing to.

[illegible] you jointly have agreed upon a proposition like that, if it is agreeable to you -- and I do not want to influence you one way or the other -- I think we can get some relief. But let us get at it on a practical basis, and if we have to go to the army and say, "The need for shipbuilding requires the release of physicians here and here and here in accordance with these plans, give them to us," and go to the Public Health Service and say, "Detail physicians over here for us," and then we can work on it, but we are not, certainly going up as the Maritime Commission's experts in ship construction, but having no technical standing as far as industrial health is concerned and say to the army, "We have got to have so many people released." They will turn around to us and say, "How do you know?"

You give us the background and the basis to go on, and we will go to town. If that is what you feel, adopt a resolution, if you want, so we will have it in tangible form and black and white as to exactly how you feel about that.

Now, I do not know whether there is any division of opinion or not. If a pre-placement examination is right and the best thing, why, that should be, and come out flat for it. If you are short of doctors, say "This should be, and we must have more doctors. It is up to the Maritime Commission and the Navy if they want this program to go along to get them for us. We ask you to get them and point out to

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Let us get down to bed rock. Are we going to have the physicians all over the country make pre-placement examinations or not? You people here ought to know. If we are not, let us not put that forth yet. If we are, let us do it, but let us do it on a practical basis, but not on an if, and or but proposition.

CHAIRMAN DRINKER: I do not see any reason to believe we are going to get any substantial help in increased numbers of doctors. We will get some emergency ones.

MR. GARFIELD: Why not? Shouldn't our men have examinations just as the army does? They need more. The type of men we are getting now are very poor, and I think it is the Maritime Commission's job to see we get the doctors. That is part of their work.

MR. RING: All right, if you think so, and all of you want to get together here and say, "We think, one, preplacement examinations are absolutely necessary to run this war production program on an even keel; two, we are short of physicians; three, we, the doctors, in the shipbuilding industry, jointly here say that something has to be done to get

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these doctors, and we put the load of it on the Navy and the Maritime Commission," tell us to do it. Tell us that that standard should be there, but let's not go at it on a wishy-washy basis, gentlemen. We have a job to do and we have to do it in the most practical way. With the heat we can put behind

in the yard it is a necessity, and I intend to take the matter up with our Gulf operating officials at the Maritime Commission and see if we cannot get an answer to it within the next twenty-four hours. There isn't any use dilly-dallying about it.

While I am on my feet, and because I generally start talking when we get in a conference, I might make a reference to the pre-placement examinations.

Let us get understood on this thing. We want to set up standards that are practical. If we have not got the doctors to do the thing, there is no use putting it down in black and white and saying we are going to do it. Let us not skip by and say, "If we can do a thing we will do it." Let us find out from the knowledge you people have here what the story is and whether you can do it or not. That is a ticklish proposition.

Back in the old days, unions grew up into the belief that the physician in an industrial establishment was a dupe of the employer whose principal objective was to keep out organizers or people who would stir up trouble or anything else. That has grown up as a sort of a fetish with them, and that is the sort of thing that is behind the refusal of many branches of organized labor to go ahead with pre-employment examinations.

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Again we will have to assume that had we the personnel; how would you feel about that item 2, in a general way?

Item 3, "Special Examinations, such as X-ray, serologic and urinalyses shall be given in the individual case as indicated and in accordance with local needs."

I do not believe there is any need to do that, because you will do that anyway. Several yards have raised the question of facilities for X-rays. That is, it would be cheaper to have the X-ray there and take their own pictures instead of having to ship the men into town and save a very considerable delay, and often it would be much better to make the examination themselves right at the yards, and take the pictures, because they could do it better.

In general, we approve of that very warmly, and we would support requests from any yards for funds to do it. Whether we will get away with it or not, I do not know. I think we will.

MR. DANIEL S. RING, (Director, Shipyard Labor Relations, U. S. Maritime Commission, Washington, D. C.): Is that with respect to X-rays?

CHAIRMAN DRINKER: You can put that in the question, too.

MR. RING: In a yard with 10,000 employees, which I understand Gulf has at the present time, I think it is highly important that we have an X-ray machine and the facilities for

have ever had anyone, company official, union official, or any other official will object to that particular policy. I do not believe the Maritime Commission needs to give us the authority to do that. I think that is the physician's job.

CHAIRMAN DRINKER: I have not.

DR. RIEKE: The other point which I raise, and the thing which I am alarmed about, is this, and the point was raised a while ago. How many pre-placement examinations are you going to do, in which case how many doctors do you have to hire? Under our present shortage of physicians, and it is the same in all yards, I know that, we do not have enough physicians to do pre-placement examinations, and I do believe that we would be pretty hard pressed on periodic check-ups, even on certain critical occupations, with our present physicians' staff. In other words, this minimum standards is our maximum standards. We have had a hard time even getting up to that. We are getting by with our dispensary service with this personnel. I am pleased to see that our personnel is about what the minimum standards are, but I do not believe the extra load of examinations could be carried by our present medical group. We have had the same question asked by other physicians in the community as to who was going to do those examinations, and I raise that for a little consideration right now.

CHAIRMAN DRINKER: It is a perfectly good point.

your job and that is my job, and it took me several months to find it out. It is a physician's duty, and there is no one that I know of, including the unions, who can object to that policy. It is an odd situation that you have to wait until an epileptic has an attack in front of a scaffolding or in front of a hoist, or somewhere, in order to let him go, yet we have had to do that, and we have given discharges to, I should estimate, fifty men in one yard who were epileptics. The Lord knows it is hard enough to keep a working force there with the material we are getting, and yet it is only fair to the large percentage of the men that those people who do not or are not able to keep control of their faculties all of the time that we should let them go. It is not a matter of looking after one man's interest; it is a matter of looking after the welfare of the whole yard. In other words, an epileptic on the scaffolding may fall off and kill a number of men below him and get off scot free. I think you have no alternative on that. I do not think anyone has to say to you that we have the authority. We certainly do have the authority. You cannot find it in the law, but it is your job and you should take that responsibility on yourself. Many men would object to it. It would be well for you to go to your company officials so you are both in agreement on the thing, and if the union officials desire to be considered I would talk to them about it, but I do not be-

to him to get the treatment, but we require that he does take his treatment.

DR. RIEKE: What do you do if he doesn't?

DR. CROFT: Let him out.

DR. SPENCER: I should like to ask if the medical office in the plant ever has the authority to say the man must not work. I am confronted every day with that problem, - a man whose physical condition is such that I do not think it is safe for himself or others. I have found several men with epilepsy in the plant traveling around on scaffolds carrying heavy weights, and I do not see how these men could be safe in a shipyard, yet they are still employed. I was told that a man, just before I came there, had a broken shoulder and a broken arm and a broken leg who went back to work, and I do not think that man would be safe. Has the medical officer the right to say, "This man is unsafe and should not be given employment?"

DR. RIEKE: I would like to answer that question first by bringing up one other. When we started in we had no authority to say, "You cannot work." No one gave us that authority. We took it on. There is no one on God's green earth that can say to a doctor who exercises the proper precaution for the man himself and for the man around, "You are doing wrong." No one I have ever seen has the guts to come to a physician and say, "You cannot let the man go." That is

enough.

I would like to ask a question. How about this serological examination. Is anyone making serological examinations?

DR. CROFT: We do in our pre-placement.

CHAIRMAN DRINKER: You do serologics?

DR. CROFT: Yes.

DR. PRICE: What do you require? Do you require that they have treatment?

DR. CROFT: I take care of the Merrill Stevens Shipyard as well as St. John's, and there we require them to take treatment. The pre-placement examination is just going through at St. John's now, but I have arranged for urine and serological on every one of those. I have a technician just for that.

CHAIRMAN DRINKER: Suppose a man is asked to take treatment, do you have any evidence he does? Do you have any check ups on him?

DR. CROFT: We have been trying to require that that man take treatment and report to the first aid station each week with a card. We have a card giving the date, the form of treatment, and the doctor that gives the treatment, and have them sign the date of treatment and his name, and have him report every so often to show that he is taking treatment. We are not attempting to give the treatment itself. It is up

and X-ray work, and paint sprayers."

Purposely we did not try to enumerate them all, because we can't, and because of the different things that go on in different yards, but the general thought is that those check-up examinations, in fact, ought to be given by the yard physicians in cooperation with the safety department and management ought to state what jobs are to have these check-up examinations. In our opinion, not having them now is working labor a great deal of harm. I do not think labor quite realizes how much harm. Besides, the most important point from that point of view is the man power. We just cannot afford to go along doing the way we are now. It does not matter what we think we have to do. We will welcome some discussion on that item.

DR. PRICE: Our problem is this: We have a very quick turnover of around two thousand per cent every three months, and we do pre-employment examinations. We would either have to quit the pre-employment examinations to do the other, or else we will have to wait until the turnover is less.

CHAIRMAN DRINKER: Is the turnover tied up with the examinations? That has nothing to do with the examinations. The examinations do not cause it.

DR. PRICE: We have to examine all the new men. That puts such a tremendous burden on the facilities that we have, that we cannot do it. We can't get the new men examined fast

selves as to the magnitude of the problem and the difficulties of getting it through. We still think it ought to go through.

MR. WOODELL: My point is, as far as the union is concerned, you say a man may be ruled out as a crane operator, and I say that if he went back to his union and told them that he could not qualify as that, he would not be out. He might be classed as a laborer, or something of that kind. You are speaking of a case where a man is the member of a union. We have not go so many of those now. They are all coming in from the outside, and the number of permanent members of the union that would be unfit to work on that classification are so minute I do not think it is a real problem.

MR. O'CONNELL: If you are going to give an examination on a man who is already working, he has to belong to some union.

MR. WOODELL: You are speaking about new employees.

MR. O'CONNELL: Haven't we got to that?

CHAIRMAN DRINKER: That is the next item. That is at the bottom of Page 2, "Periodic check examinations shall be given men working in occupations potentially hazardous to themselves or others, as for example to crane operators, locomotive and hoisting and portable engineers. Periodic check examinations should be given men in jobs in which there may be health hazard, as for example to sand blasters, radium

has an agreement that will accept a journeyman from any other craft, and that is the machinists. As an example, if you take a man who was an operating engineer running a crane and after examination decided he was not physically able to run that crane and you were moving him to run another job, that would necessitate his joining another union and paying anothe initiation fee.

CHAIRMAN DRINKER: We are well aware of that. We understand the difficulties, and possibly even some misunderstanding, or even turmoil this suggestion will cause, but we still think it ought to be done. We have talked with the A. F. of L. officials, and they have been more than cordial to the suggestion, and we have hopes that we can show the union leaders who are responsible for that clause that Dr. Rieke cited, and that this gentlemen just cited, that it will be decidedly to labor's advantage to change that, and we have every hope we can change it.

MR. TODD WOODELL, (Oregon Shipbuilding Corporation, Portland, Oregon): With reference to this transfer from one union to another, I believe you will find most of the unions working on the West Coast agree that they do not take initiation fees immediately, and if they could not be classified as a crane operator, I do think they could go into one of the other unions where they would classify.

CHAIRMAN DRINKER: I do not think we are kidding our-

union members are unable to be employed through the depression, or partly so, because of physical disability. They have long since exhausted the regular union members, and we find the union members are agreeable not to pre-employment, or, rather, pre-placement physical examinations. I raise the point merely for discussion that we find ourselves now short of what we choose to call the helper classifications. In other words, our upgrading system has been such that we have perhaps an excess of journeymen workmen. The pre-placement examination now will be a sorting process, pretty much, to help us get more helpers required to do the heavier work. Now, that will adjust itself, depending on how long our operations continue. We, of course, favor pre-placement examinations very strongly. I think they should have been in from the start simply because we have had so many accidents happen to men who had no business doing the work they were doing. A large percentage of our employees would under normal circumstances be considered only physically capable of limited activity. We are strongly in favor of pre-placement examinations.

MR. O'CONNELL: In the West Coast yards where we are operating under the Pacific Coast Master Agreement with the American Federation of Labor, doesn't that provoke some difficulty in crafts? There is only one craft I know of that

Coast can do it.

The interchange of accident reports, say, under Item 6, on Page 2-A, that is in the yards we have seen, has been not near as good as it ought to be. We hope the improvement in the record forms will help, but the record forms, as we found them, in such yards as we investigated in many cases have been extremely faulty with a very great lack of interchange between the safety and the medical groups not being reported back fast enough.

Let us go on to the examinations. We do not say the employment of an employee shall depend on a physical examination. The labor shortage is such that I did not think there was any sense putting that in. You could not get away with it. Besides, labor is opposed to physical examinations, because of abuses, alleged abuses.

We suggest the use of the examination not before hiring, but after hiring, for proper placement, and to continue hiring on pretty much the same theme as is now in use everywhere.

What would be your opinion about that, especially the West Coast gentlemen?

DR. RIEKE: I think it would be interesting to know that we have been specifically barred by union agreement, which was drawn up at the cost of a good many million dollars with all of the West Coast shipyards, from doing any physical examination prior to hiring. That was written in, we believe,

CHAIRMAN DRINKER: If you are doing it, you are doing something few others are.

MR. GARFIELD: The aircraft industry is doing it quite a bit.

CHAIRMAN DRINKER: On the West Coast?

MR. GARFIELD: Yes. We have not been permitted to do it in our labor relations.

CHAIRMAN DRINKER: It is specifically forbidden in the A. F. of L. West Coast contracts.

MR. BECK: Army ordnance is giving pre-employment examination in all their plants.

CHAIRMAN DRINKER: So is the United States Navy.

MR. BECK: Those are contractor operated plants and not Navy operated yards.

CHAIRMAN DRINKER: The Navy operated yards give pre-employment all over, Baltimore, Mare Island, all of them give pre-employment examinations.

DR. ADAMS: Those are civil service employees.

MR. BECK: I am talking about contractor operated Navy yards. They are operated the same as the Bethlehem-Kingham Shipyards. They are operated by private contractors, and the employees are the private contractors' employees, and they have been able to get around the union objections.

DR. RIEKE: That is not true on the West Coast.

CHAIRMAN DRINKER: The Bethlehem plants on the East

Turn to Page 2-A, gentlemen, on the general question of the form of accident reports, and the like. Mr. Roche will take up with the safety engineers this subject, and he is doing it now. I would like to have us evade that question if we can. The form he has I think will satisfy any of you for completeness, and if we confine our discussion to records in general to those that apply purely to the medical side, it would be better now. Is there any discussion on these items on the records and forms? We have no defense at all for the present Maritime records. The sooner they are done away with, the happier we will be.

MR. RELLER: On the question of X-ray equipment, say, at the top of Page 2-A, an X-ray unit for yards employing about five thousand men and above, I would just like to ask this question: At pre-employment examinations, how many of the yards here are giving X-rays, taking X-ray pictures? Could I just ask for a showing of hands on that? How many are giving pre-employment X-ray pictures, chest pictures?

DR. RIEKE: Who is examining pre-employment; that is another question?

CHAIRMAN DRINKER: I think the reasons for going into that are practically none.

MR. RELLER: The reason I ask that is the United States Health Department in the State of Mississippi are insisting we give everybody, all pre-employment, a test picture.

MR. O'CONNELL: I would like to get the doctors' opinions

CHAIRMAN DRINKER: As for as the Maritime Commission goes, they would not have any opinion. I think it is up to the individual yards.

MR. DAVE KAYE, (Kaiser Company, Inc., Richmond Shipyard No. 3, Richmond, California): I don't think that the majority of doctors want physiotherapists or osteopaths working in their organizations. We at Truly Dam had one working with us and we found him very good. We classified him as a physiotherapist. He was not referred to as a doctor at all. He was very good on back cases. I am sure he reduced our lost time cases quite a bit. They have a little knowledge of back injuries, and so forth, that doctors in general neglect very much in their training. I think the consensus would be against having an osteopath in the organization.

DR. McCOY: I think one of the items under the physical facilities that has been neglected is the space and necessary room for registration and keeping of files and records, and some place to put the clerks. They should not be in the waiting room. They ought to be behind the desk and keeping the patient on the other side away from the typewriter, and things of that sort. It should take up a definite amount of space.

CHAIRMAN DRINKER: We did not mean to leave it out. It should be in. I am sure everybody will agree to that.

DR. RICE: You are talking of a first aid dispensary in the yard. These are all-out-patients.

CHAIRMAN DRINKER: No, that is not what I mean.

DR. McCOY: If you have anything separated, it should be outside of the yards, and that will be an additional expense. They can't get the men inside the yards.

DR. SPENCER: I have made a recommendation to the firm where I work that they build a dispensary outside the fence so the out-patient can come in and get treatment without entering the yard, and by putting a guard at the inner door only, those that return to the yard have to come back inside.

DR. B. JOSEPH PRICE, (Medical Director, Gulf Shipbuilding Corporation, Mobile, Alabama): What facilities in physical therapy do you recommend?

CHAIRMAN DRINKER: We did not detail them. I think it is up to the individual yard to do that themselves. It would just be evaded in some places who would not want it.

MR. JOHN F. O'CONNELL, (Marine Ship Corporation, Labor Coordination): I have made a survey and find a great many injuries in our yard are back injuries and major joint injuries. I am wondering about the possibility of having in the yard, where we have two or three doctors, one of the doctors an osteopath to treat back injuries, and so forth.

CHAIRMAN DRINKER: We did not attempt to say whether you should employ any specialized physicians or not.

tance. To expect them to come in with their minor cuts and scratches, if you don't have your station closer than that, means you will miss a lot of them, and the desideratum is to get bandages on all of them, not only so you will have a record to protect the workmen, but to get the small stuff before it goes up.

DR. ADAMS: Now, I saw one thing there; do you make out the standard compensation forms on every patient?

DR. RIEKE: No, we do not. We attempt to keep a first aid record as to how the accident occurred, the nature of the injury, the identity of the workman, the date, and so on.

DR. ADAMS: That is very similar to what we use. We use a 4 x 6 card, and that simply fits in with our experience. It takes about 80 per cent of the time of the nurse per patient for your record, and about 40 per cent for your treatment.

DR. RIEKE: Your answer there is to get clerks. That is why I say more clerks, and less nurses. Our clerks work about half time. We hire them for full-time, but they are only there about half the time.

CHAIRMAN DRINKER: The suggestion was made to me this morning that there should be a separate room for patients; that is, patients that are coming in for retreatment, so they won't get mixed up with the others, just to make it easier to get them through. What is your opinion on that?

that?

DR. RIEKE: The Vancouver yard is probably the busiest one in our area, and that is solved in this way: We are putting what we choose to call sub-stations on the ways, one or two on the ways, depending on the number of ways. The same thing is true in the Oregon and Swan Island yards. There will be one in Vancouver on the outfitting, one in the assembly and plate shops. You can get away from the difficulty of distance, and I think you will find in those that are the greatest in population that that will take the load off the main station. In other words, use your small stations as screening stations, probably, with a nurse at each station. Now, it may be that you will need a nurse in the station aroun the clock. It depends entirely on your swing and graveyard shifts.

The only objection which I had in starting that system is the problem of keeping adequate medical records on those individuals which you take care of in sub-stations. That is an objection which will have to be taken care of. There is no other way of doing it. The distances become too great in the yard to ask all of your medical staff to come to one station. They are forcing me into that largely because I have come to that idea simply because we are not seeing a lot of the stuff from farther out.

Your four hundred yard figure is easily a maximum dis-

we have a first aid station with separate waiting rooms. Th dressing room is separate from the surgery, and the redressing is a rather long room, perhaps as wide as between the posts, and one end is for the colored people and the other end for the whites. Of course, we do not have a large percentage of women at the present time.

CHAIRMAN DRINKER: You probably will have, though.

DR. ADAMS: The chances are we will. It is proposed, possibly, with an additional first aid station in another place in the yard that we will have a very large facility there spread out over quite a big area, and the suggestion in these notes was that no one should go over four hundred yards to the first aid station, and that is not possible, in our set-up. I am the only physician in attendance. We do not attempt to keep any patients overnight. If a man is too critically hurt, and as we are close to the hospital facilities, they are sent there, and the men in town take care of those cases. I am merely on the yard, and I have nurses around the clock distributed so as to take care of our load.

CHAIRMAN DRINKER: Do you think four hundred yards is impossible?

DR. ADAMS: The four hundred yards suggestion is a good suggestion, but it is not going to work in many places if you spread out much.

CHAIRMAN DRINKER: What do some of the others think ab

quest, at least, segregation of color?

CHAIRMAN DRINKER: I do not see any way to evade it. You have the yard, and that is where we want the yard. We are not in a position to say you should or you should not do it, with the tradition of the neighborhood. You would have to do it that way. I think we have to accept it as we find it. We agree with it.

DR. W. J. REIN, (Delta Shipbuilding Company, New Orleans, Louisiana): Are the Maritime Commission going to request that these notes you have here be the minimum requirements of the yard?

CHAIRMAN DRINKER: Yes, they are.

DR. REIN: The reason I ask that is we do not have anything like what you are asking for here. We have the doctors, but we have not these other facilities. We also just recently completed our new first aid station, but it does not come close to measuring up to your minimum standards here. Of course, that is a matter of finances. But the other money will be coming in for extra help.

CHAIRMAN DRINKER: Yes.

DR. CHARLES C. ADAMS, (Hookers Point Shipyard, Tampa, Florida): I am representing one of the youngest branches, perhaps, of the industry. We are building reinforced concrete ships down there, or trying to.

Answering the doctor from Savannah, or along those lines,

question of the disapproval of the plans. It is a question of getting the necessary approval of dispensing the funds to carry them out. The Navy has not approved that.

MR. BECK: I merely have volunteered that as information to show that we should put together the people who are concerned about it, and who can plan the functions of a hospital and the hospital being laid out to give the minimum amount of space that can be used for the various functions to be performed.

CHAIRMAN DRINKER: I do not think the yards are lacking in knowledge of what to do. It is the inability to get authorization to do it on these physical facilities, as far as the medical ones go.

Is there any other discussion on the physical facili s

DR. L. C. SPENCER, (Medical Director, Southeastern Shipbuilding Corporation, and MacEvoy Shipbuilding Corporation, Savannah, Georgia): I would like to ask for some recommendation in regard to sex and color.

CHAIRMAN DRINKER: We have not tried to evade that, but, again, what is to be done about that will vary a lot with the geography. It depends on where the yard is. The fact that you have got to have that means practically four sets of facilities in the South; not always in the North, but it does in most of the South.

DR. SPENCER: Would you regard that as a reasonable

CHAIRMAN DRINKER: I know that has been suggested for several of the Gulf states where there is a shortage in the maritime and navy yards, to reassign some doctors from either the Public Health Service, or the Army or the Navy.

MR. KELLER: They won't do that.

CHAIRMAN DRINKER: I think they will.

MR. KELLER: The Navy won't, because we have a doctor down there taking care of about four hundred soldiers, and we would like to borrow him to take care of physicals, and he wants to come in, and he is just sitting around twiddling his fingers, and we can't get him to come.

DR. GARFIELD: The Public Health Department said they would if the Maritime Commission requested them to.

CHAIRMAN DRINKER: I know that, too.

MR. BECK: Dr. Drinker, can we talk to the physical facilities?

CHAIRMAN DRINKER: Yes.

MR. BECK: I would just like to volunteer, as a matter of information, that the Navy Department has developed and will have available standard sets of hospital plans in the yards, if you want to have them, that have been worked out with the cooperation of the National Industrial Hygiene Division of the National Public Health Service of the Surgeon-General's office, and the hospital design section of the Navy.

CHAIRMAN DRINKER: Again, I do not believe that is a

right out and said that manufacturing centers like New York, Massachusetts, New Jersey and Illinois, and so on, are the ones that are not over their quota, and some of the South states, generally, are way over, and they have been depleted in doctors as a result, and the manufacturing states have not subscribed their quota. Some sort of a redistricting is inevitable. I imagine that is one of the jobs that Mr. McNutt has just had landed in his lap. I do not think there is anybody today who can say what the solution is going to be, but we are thoroughly aware of it, and we are also aware that there are quite a few yards that cannot live up to these suggestions of personnel. You simply cannot get them for exactly the reason you gave. We have seen two or three yards in precisely the situation you have, where they have surgeons who have done no industrial work at all, but have gone in to help because they know help is needed.

I know that does not answer your question, but if you could get them, is this a reasonable distribution of personnel?

DR. S. R. GARFIELD, (Richmond Shipyards, Vancouver - Kaiser Company): As a possible answer to the Doctor, when I was in Washington, the Public Health Department stated that if the Maritime Commission would make the request to them, they could assign doctors to those areas where they cannot get doctors any other way.

made absolute failures of their lives. Now, those men are inadequate. They are not the type of man we want. Is it possible in some way to get some younger men, or men that would give up their practice, to come as all-time men? The men are worked to death. They make three times as much or four times as much as they would on an all-time job, and it is practically impossible to get men for full-time jobs.

CHAIRMAN DRINKER: That same situation applies to quite a few yards now.

DR. CROFT: Is there any solution to it?

CHAIRMAN DRINKER: We think there is. Some of us do not think that the distribution of doctors to the forces has been quite as fair as it should be, in view of the shipbuilding program, and some of the other manufacturers, and we hope to get some of them back again, frankly.

DR. CROFT: Our part of the country has been rather liberal. In fact, we have gone over our quota. I am not an industrial surgeon. I am just simply a surgeon that went in to take care of the injured men, and now this whole problem is thrown in my lap to take care of the whole business. Frankly, I am up here to learn something so I can help take care of the shipyards.

CHAIRMAN DRINKER: We saw the same situation in a number of places. I talked to Dr. Leahy in Boston, and he came

we postpone that?

MR. BECK: It does have a direct effect on the number of doctors per thousand employees.

CHAIRMAN DRINKER: I agree with you, but that will come a little later.

MR. LOUIS S. RELLER, (The Ingalls Shipbuilding Corp., Pascagoula, Mississippi): In our yard we use a station wagon inside the yard to detract attention, and when the case goes out of the yard we have a regular ambulance, which is used at the side entrance instead of the main entrance, which passes the employment office.

CHAIRMAN DRINKER: We certainly would not take any exception to changes like that, from the Maritime standpoint. I think that is something that the local yard could do, ar we surely would not make any objection. Do you think we should try to put that through for the others?

MR. RELLER: No; I answered the question upon the request of Dr. Croft.

DR. THEODORE G. CROFT, (St. John's River Shipbuilding Company, Jacksonville, Florida): In regard to personnel, the first requirement in there is that they have full-time medical men. In our locality that is practically impossible. Out of our town we have fifty men in the service, and there are probably only about five or six left that are available. We are away above our quota, and the only men that I have had

DR. F. E. RIEKE,(Medical Director, Oregon Shipbuilding Corporation, Portland, Oregon): You have too few clerks on that, for one thing.

CHAIRMAN DRINKER: Too few clerks?

DR. RIEKE: I think so.

CHAIRMAN DRINKER: How about ambulance facilities, is that all right?

DR. D. A. McCOY,(Liberty Mutual Insurance Company, Medical Research, Industrial Division, Boston, Massachusetts): Why not have instead of a passenger car a station wagon?

CHAIRMAN DRINKER: Because we were not sure we could get it. If we could get a station wagon, we will put it in. It is a good suggestion. You mean that as a stand-by?

DR. McCOY: That is right. Doesn't the Army or Navy or the Maritime Commission have authority to pick up such things from the public?

CHAIRMAN DRINKER: We can get them.

DR. McCOY: You can get them?

CHAIRMAN DRINKER: Yes, within reason. That is a good suggestion. Are there any other suggestions in that first part, under personnel?

MR. LESTER F. BECK,(Chief, Navy Insurance Division, Office of Procurement and Material, Washington, D. C.): How frequently are you going to examine the men that are subject to those occupational disease hazards?

CHAIRMAN DRINKER: That comes a little bit later. Could

UNITED STATES MARITIME COMMISSION

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No. 1
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MEETING IN REGARD TO THE MINIMUM STANDARDS FOR THE CONTROL OF HEALTH IN CONTRACT SHIPYARDS OF THE MARITIME COMMISSION AND NAVY.

Held in the American Room, Hotel LaSalle, Chicago, Illinois, on Monday, December 7, 1942, at two o'clock p.m., Dr. Philip Drinker, Department of Industrial Hygiene, School of Public Health, Harvard University, Boston, Massachusetts, presiding.

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CHAIRMAN DRINKER: Gentlemen, we want to discuss in some detail the suggestions for the so-called medical standards, and then we want to give you some short demonstrations on some particular elements we want to bring out, and it is our hope that this will be very informal so we can break in and ask questions or make suggestions as we go along.

Do you all have copies of this? If not, we will give you some more; this minimum standards for the control of health.

Have any of you had a chance to look at these? It is all right to ask you to criticize them now as we go along. That is what we want to get. Now, how about the first part on personnel?

Again, let me thank you for coming from all over the country to this conference, and also for your kind attention, and I hope that you will be able to work these standards out in such a way that the whole industry will receive the maximum possible benefits from you.

(Thereupon, at 12 o'clock noon, a recess was taken.)

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we have been able to progress in the way that we have.

So, roll up your sleeves, and get down to work this afternoon, and let us bring out of this some real practical constructive standards that will be of benefit to the million men who will soon be working in the shipyards. The attention that is given men's health in the armed services is very, very pronounced. We can do no less for those who are in the Army, and the men who are backing the services up too, because this war unlike any other war, presents a home front that is more important than any other home front ever has been in the history of the world. This is a mechanized war, and the ones who provide the machines and the instrumentalities of transportation to get the machines where they are needed to participate in the war is very important, and every one of you are participating in this just as much as if you were out there on the front lines with a Garand rifle.

Now, again I want to thank you for the attention that has been given to everyone, and although after conferences a time comes when we have to get down to desks again and steady things that are possibly dry, nevertheless, the outcome of it will be something, I think, if we give sufficient attention to it, that you will be proud of. I call your attention again to the exhibits that are here that will be ready for inspection, and I hope that you will enjoy the demonstrations that have been prepared for you.

and safety and training. We have received the cooperation of persons who are outstanding in their line with respect to the development of this program. We want now to go into a phase whereby everybody will actively participate in the formulation of these standards, and that will occur this afternoon when we break up into two groups, one from the medical side, and one from the health side.

Dr. Drinker will be in charge of the discussion from the medical side, and Mr. Roche from the safety side. Now, there is one thing I would like to ask all of those who have not done, and be sure to do, because we want a complete record of this conference, and that is with respect to registration. If you have not filled out a card showing that you are here, and giving us the data concerning your company, address, et cetera, I hope that you will do so, because we would be very happy to have that information.

I want to say that the attention has been given this morning, and the reception that has been given to those of us who have spoken has been something that brings to me a great deal of satisfaction. I hope that nobody will pull any punches this afternoon. The only way that we in this country get by, and develop things, is by having our own ideas clearly presented. If we do not agree with a thing, at least here in this country, we can step up and say that is whacky, and here is why I think it is whacky, and it is the only way in which

very happy to be of service in this connection, and to assist in the development of the type of information which will help both you in the yards and the people in the Maritime Commission, and other Governmental agencies, to know how the yards are coming along with the safety program and through the medium of statistics, to indicate to them the danger signals, the sore spots, to which they can in turn direct their attention.

I want to assure you of one thing. I have no use for statistics as such. They are valuable to us only for the same reason that they are valuable and should be valuable to you, and that is as signs, or danger signals, or as tests, of good performance. Now, to the extent that they can perform that function, they can be of value, and we will do the utmost to put at your disposal the facilities that we have. To the extent that they are of no particular value to you, I want to assure you that we will be the last one to burden you with anything that will have no use to either you or us. Thank you very much. (Applause)

CHAIRMAN RING: Now, we are running toward the close of the morning session. I think we ought to have a resume now to see exactly where we have gone, and what has happened. First, you have had a group of men who have made a tour of this country to ascertain what the facts are, and present to you their reactions as to what is needed with respect to healt

Bureau of Labor Statistics, who is willing and desirous of extending the full cooperation of that Bureau to our group.

Now, let me say this: There is going to be no yardstick whereby we can gauge the proficiency of one yard against the laxity of another, unless we have our statistical data on the same basis, or on the same basic plan. We do not want to go into a ramified and diverse statistical exploration, but what we do need, though, and what we will ask you to give your attention to this afternoon is the study of the statistical forms that you will find attached to your safety minimum standards.

Before we go into the huddle this afternoon, and so that you will know Mr. Kassoris, I would like to ask him to come up here and say hello to you, and tellyou in brief just what the story on statistics is.

MR. MAX KASSORIS: I came up here primarily to sit in on the discussions in connection with the forms that have been suggested, to get your reactions to them. I want to see whether or not you have any suggestions for their improvement so that they will give us a little better indication of what causes accidents in the yards, and how we can better keep track of what is happening. I do not want to burden you with any discussion of the details on the form, because we will go into that this afternoon. We of the Department of Labor, and specifically the Bureau of Labor Statistics, are

to figure out for you the best way of getting around each one of those reasons, why you cannot reach that safety or health objective, and you will come up with two things. will come up with some hazards which you have previously overlooked; you will come up with some methods of solving those hazards or getting around them, which you have previously overlooked, and the second big thing is that you will have that shipyard organization completely behind you in your efforts to make the yard safer, and more healthful. That means that you will be taking the brake off production, which is put there by accidents and sub-normal health. Thank you very much. (Applause)

CHAIRMAN RING: Now, I think one of the worst crimes that any conference commits is to overburden conferences with too much talk, and too much material at one time. Well, we will meet again this afternoon at two o'clock. There is only one other item that I think we should go into this morning, and that is with relation to statistics. Now, statistics are the bane of most production men's lives. We hear about all of the questionnaires that are going out from Government agencies with respect to them. On the safety program you will find a form which we hope can be made standardized for all statistics in the shipyards that are represented in the Maritime-Navy program.

We have here with us today Mr. Max Kassoris of the

35hs

ever looked at them washing them, you would nevdr take a drink out of those cups again. That is the way they are washed, and that is the way thousands of men have to drink their coffee out of those tin cups. That is why quite a large percentage of sore mouths were developing in the yard.

The labor-management committee in that yard took that into consideration, and they made a report on it, and for a brief period, a couple of days, three or four, perhaps, the men were served paper cups, but after three or four days, the tin cups were back again, and nobody did anything about it.

That is an illustration of how in the safety and health end of it there should be a closer tie-in between labor-management committees and the health officers, or those who are responsible for the health end of the shipyard and also the safety engineers. Does that check?

We might be pretty safe in saying that unless you safety engineers and unless you doctors make a setup through which you can utilize the training facilities in that yard, to actually put the problems right up to the men themselves, don't even try to put all of the problems up to them, but put up to them what you are trying to accomplish in the yard, and then ask them to tell you the reasons why you won't accomplish it, and then still hold yourselves in check and do not let yourselves give them the answers, and then ask them

34hs

Now, there is another group here whom we have not mentioned a great deal about, and that is the labor management committee. Those people who represent the labor management committee. Now, the idea of the labor management committee was to help push production, to help cut out the things that causes loss of production, and substitute for them methods which will help production.

Now, we can do two things with labor management committees. We can get them to deciding what kind of a poster would be the best to place out in the yard; we can set them to doing any number of things which would not infringe on management's prerogative in running the yard, because perhaps in some cases we may be afraid that they will take some of our prerogatives and so we will try to keep them from working on anything which will involve some sort of a decision, or we can put up some of these things pertaining to safety hazards to them, and ask their help in developing what those hazards to safety and health really are, and believe me there are plenty.

I happen to know of one shipyard in which at a labor management committee meeting, the subject of tin cups came up in which the caterer had a lot of wagons around the yard, and they were serving coffee in tin cups with rolled edges underneath. Have you ever checked to see how those tin c are washed? Do you know how they are washed? Well, if you

individuals to work out all of the difficulties that lie in their way, why they cannot do those things, and then for each one of those difficulties, or obstacles, they work out a specific solution. Safety and health are certain production objectives, aren't they? We can call on the supervisors to help us in working out why some of these objectives are difficult to attain.

In cutting down lost time, accidents, for instance, you will be improving production, and when you are able to show that to the supervisors, they will begin to show you all kind of reasons why what you are suggesting would be impossible to do. However, then they would begin to think about the matter and go over all of the work, and work out what they believe would be a way of getting around every one of those obstacles and when they were through there is not a safety engineer in the yard, or in any yard, that would not have run across a great number of things which he otherwise would have overlooked, which will help him to do a better safety job in that yard.

What else have we? Those supervisors who helped him work out a better program, by discovering some hazards which have previously been overlooked, and then by working out some solutions for each one of those hazards, each one of those men from then on, would be safety minded. Why? Because safe has become their baby. Doesthat check?

32hs that has been his only contact so far as health in the shipyard is concerned.

At other times he may come into first-aid because he may have a very sore throat. Now, you who are on a monthly salary, would probably go home on account of that sore throat I mean, it is possible that he might, but if he is on an hourly basis, he will not want to go home, because he will not want to lose the day's pay, and so they swab his throat. They are beginning to do it more and more now.

I have heard quite a bit of discussion already as to whether it was good practice for the first-aid to do something for a man which does not involve an industrial injury. I have heard discussions pro and con with the predominating note seeming to be that we really ought to take care of the fellow, although it is a non-industrial injury, because it will help us to get some work out of that man that we would not get otherwise. In other words, he would go home, if he were not given that attention.

Still, when the safety and health standards are being set up it will be a little bit easier to work up a setup of that kind.

Now, if those responsible for health in the shipyards, and those responsible for safety in the shipyards, will go to the supervisors who are directly involved, for the correction of something that needs to be done, and ask those particular

selves.

Well, if we want to correct those situations, maybe we had better get the welding department to get in there with us to help us work out a program for the proper training of people to be able to do the things which are required, once they get into the shipyards. If we do that, it means that the safety department will come to the training department, and the two of them will get together and pull in the welding department, and the welding department and the safety department and the training department will work out a method which will include safety practices, safety hazards, safety procedures, as well as the technique, or the technical side of welding. Does that check?

Now, one of the ways in which the safety engineers and the doctors, and somehow or another I am speaking now of the fellow who has been around various shipyards as a shipyard employee, one of the things that we run into is that very few people know the company doctor. Does that check? Very few people know the company doctor. About the only contact that the man might have with the medical end of it, or the health end of it is when he has a burn, or a flash, or some accident that brings him to the first-aid station. That is his first contact. When he gets in there, there is a young woman who takes a record of what happened to him, and another nurse fixes him up in a hurry, and he is on his way out, and

or we can do it the other way. We can ask their help in determining what we are up against, and what we ought to to correct it.

Take one of the craft instructors, for example. Here comes a beginner in who is going to be a welder. You can get this welder to go through a course in welding and you just heard that a few moments ago, and the amount of eye flashes which are suffered in the shipyards, and that the biggest percentage of them occurred to those who had just finished a course in welding.

In other words, it was obvious safety had not been included. Now, there may be a reason for that, and one of the reasons is maybe that the welding superintendent, or the welding supervisor was not asked in to help work out a program for teaching welders. Consequently, somebody in a school uptown, or somebody in a school someplace else worked up a program for teaching welders and all he thought about was tha there was a certain seam that had to be welded, for in horizontal position, and then in a vertical position, and in an overhead position, and so all he did was to train those peopl to weld those seams under those conditions in those positions and it never occurred to him when they get out of there, wher they are not surrounded by a booth with a curtain in the back of them, and on to a platform where welders are working around them, that they would not know how to take care of the

29hs about that date that they are going to have that evening that they will be thinking about, is what you are referring to. They can do that, because they have plenty of time to do it, because the machine is doing their work for them.

Another thing is if we give all of the answers to the men in the field and in the yard, very shortly they say, "Well, of course, that is pretty dangerous, and that ought to be fixed, but we have got a safety engineer here, and that is his problem, and his worry. We will let him do all of the worrying about that." Does that happen? Sure it does. It happens right along.

One of the things that we have to do if we are going to cut down safety and health hazards in a yard is to let the men in the yard, the welders, the burners, the shipwright, the ship fitters, and all the rest of them, the time checkers, and those that are actually working as mechanics, those who are working as helpers, those who are working in jobs that are supposed to be dangerous, to let them know that we need their help just as much as they need ours.

They said here this morning that training was one of the things which was very necessary. Now, we can do training or attempt to do training in two different ways. We can make it an informative sort of thing. We can start out by giving them the answers and telling them what they ought to do, and then all they have to do is follow of those notes,

West Coasts which are to be used by the Maritime Commission field men in making these analyses. For those who want them, we have mimeographed pamphlets which describe the analytical methods for the determination of lead in both urine and blood. These are available here at the meeting, about the nature of welding fumes from black iron. The intense heat of the arc vaporizes the metal constituents of the rod and base metal and they oxidize in the air. The color of these fumes is a chocolate brown and, in general, they are not toxic. There are also some gases formed -- oxides of nitrogen and ozone are typical examples. Ozone does not seem to offer a danger. In the case of the oxides of nitrogen, however, there may be danger if the welding is done in confined spaces where there is little ventilation. In both cases, the gases are so diluted that they are invisible. Both are pulmonary irritants. There are other ~~fumes and~~ gases which are not significant.

Along with these fumes and gases, any coating such as paint will contribute fumes. Lead paint will give lead oxide fumes, and galvanized plates will give zinc oxide fumes. The first is a source of lead poisoning, and the second may cause "zinc shakes".

It is extremely important to understand just what the effects of the fumes on the men will be. The men themselves rarely know and usually speculate about the effects. They range between two extremes. There is the man who knows the worst will happen, and he will attribute many common ailments to breathing the air near a welding job. On the other hand, we have the man who hasn't the slightest concern for the welding fumes. If some accurate evaluation of the fume concentrations could be made, then, knowing what the safe concentrations are, the adequacy or need for ventilation is at once apparent.

It has been shown that thirty milligrams of total fume in a cubic meter of air is a reasonable standard when there are no toxic fumes present. At this concentration, the air is slightly hazy. The fumes begin to interfere with work, but the concentration is not uncomfortable.

As yet, neither company has a model which has been approved for protection against red lead paint spray. However, each has respirators, which preliminary tests indicate, will be approved by the Bureau.

The Mine Safety Appliances Company is showing two types for lead fume protection. One of the models is designed to fit under the welders' helmet. Another has a face-piece designed for women. Two other types have been submitted to the Bureau for protection against red lead paint sprays.

Willson Products Company has two respirators approved for protection against lead fumes. They have a model designed for women and another for wearing under the welders' helmet. Models designed for protection against red lead paint sprays are to be submitted to the Bureau soon.

It is pointed out that the filters of the respirators of both companies are the paper throw-away type. Thus, when the resistance of these respirators builds up and they become uncomfortable to wear, the paper filters are discarded. In the case of lead fumes, the time for discarding filters should be left up to the men. In the case of paint spray mists, the filters should be thrown away daily or more frequently if necessary.

There are salesmen here from each of the companies -- Mr. Charlton of Willson Products Co., and Mr. Mehaffey of Mine Safety Appliances. Both of these gentlemen will be glad to discuss your respirator problems, and tell you more about the respirators which are being shown here today.

Now, in connection with lead poisoning, it is necessary to make analyses of air, blood, or urine, in order to establish whether or not

In the pages that follow, where more than one type of respirator is mentioned the choice depends upon the degree of the hazard that is at hand.

I would like to add something to what has already been said about the lead poisoning hazard. It is possible to have a hazard either when paint is sprayed or when lead painted surfaces are welded or heated to a similar degree.

As you all probably know, it is very difficult to ventilate lead fumes down to a concentration which will not cause lead poisoning. The concentration would have to be less than 0.15 milligrams per cubic meter of airfor a continuous exposure. Now, five milligrams is a concentration which none of you would consider especially bad. This morning you were in a concentration of this order in the century room. To expect men to give proper respect to a concentration of less than 0.15 ~~two tenths of a~~ milligrams is almost too much to ask .

An added difficulty is that the jobs are usually "pick-up" in nature. They involve many short exposures for a welder throughout the day at many locations on the ship. Ventilation is even more difficult, and respirators are a solution. In general, however respirators are a last resort, because control by ventilation is likely to be more sucessful and is in addition is more confortable for the men.

We are insisting that respirators for protection against lead fumes be Bureau of approved. lines. Here are samples from the two companies having approval. It is emphasized that the respirators of these two companies are the only ones to date having approval. Therefore these are the only respirators which we are recommending for such jobs.

MR. JOHN F. LOE, Jr., ( Ensign, Boston, Massachusetts) :
First of all, I would like to say something about respirators. If you all look at your health minimum standards, you will find in Section B a discussion on respirators.

The most important point is that the respirators must be Bureau of Mines approved. We have here on display pictures of all the respirators which have Bureau of Mines approval. The advantage of having such a requirement is the assurance that the respirators will be well designed and will give adequate protection. In the section on general requirements, adequate protection is defined.

Corrected copy
pages 126-134

MR. ROSS: That is a good point. As a matter of fact, we have paid a great deal of attention to inner bottoms. We have actually practically slept in them at one time or another to see what the conditions are in there, and I will agree with you it is not the easiest thing to use these coils of hose in that confined space. Again, the circumstances will govern the procedure. I think if you get this hose to wind in among the manholes of your flooring, that will possibly do it. But it is a good point.

QUESTION: These ventilating standards are somewhat similar to the safety standards and are of the "shall be" and "must be" type. In other words, as you have in that safety standards you have "shall be" and "will be".

MR. ROSS: Well, sir, we are taking quite a practical viewpoint of this whole thing. As far as we are concerned, we think that you will feel that it "shall be". In other words, we are simply after ventilation, adequate ventilation. We want to see the ships clean and the men breathing acceptable air.

QUESTION: That is quite true from a humanitarian standpoint, but I am wondering as far as your phraseology is concerned, where it says "shall be" and in the other meeting it says "shall be" it means "do it".

MR. ROSS: You may find the wording a little abrupt, I will agree.

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MR. ROSS: That is a very interesting observation. We used this rubber hose simply because it happened to come with our display equipment. We do not necessarily say that it is the thing to do.

QUESTION: After it has been used for a while, it will become frayed and the canvas will catch the sparks, and you will have a fire as sure as the world. I know we had a lot of trouble with it, and we finally threw all the rubber hose out.

MR. ROSS: That is very interesting.

QUESTION: Mr. Chairman, at Marine Ship we use flexible metal hose, three-inch, and we have a similar set-up, but it is very difficult to get your hose within six inches wher a production welder might be welding in an inner bottom. If you have ever been down in an inner bottom you will find the three-inch flexible hose cannot bend back on itself within thirty inches from the floor, and so it is not absolutely practical from the viewpoint of a production welder, where you get six or seven of them in an inner bottom tank. We have provided a long five-inch main duct off which we take the three inches, and we figure if we can get it within a couple of feet in an inner bottom, when they are getting down close to the deep tanks, we are doing pretty well. But the flexible pipe has proved pretty successful with us for that.

course, a little more bulky, and possibly would not be so easy to get into tight places, but that is a matter of preference; and I am sure there is a good deal to be said for each.

15

QUESTION: I wanted to ask a question. About four years ago I was in Jacksonville, Florida, in a drydock, at Merrill Stevens. We were repairing a ship down there, and they had five or six welders in the bottom of an inner bottom, and they had a large induced draft fan. It was sitting right where the welder was in the inner bottom without any general ventilation, and all he did was just as fast as these six welders were welding, it would bring those fumes right up through the hole like that. Would that be a good idea, to use something like that, or is this better?

MR. ROSS: Of course, the fellows who like this, or the fellows who like dilution by general ventilation are pretty evenly divided. I think this is more efficient because you have to remove a lot of air to clear out a compartment by that method, whereas only two hundred c.f.m. will do the same job here. It is a difficult question to answer, and I think it depends entirely on circumstances.

QUESTION: We nearly had a very unfortunate situation with rubber hose in our yard. We just about smothered seven men. We were very fortunate in getting them out. So we personally would not allow any rubber hose inside the ship at

QUESTION: What is the closest you can get?

MR. ROSS: I would imagine that would be determined largely by circumstances. It would not interfere a bit. If you get it very close, eventually it would begin to pick up the sparks, ~~your spark bouncing from this welding operation and carrying down into the tube.~~ But so long as you are not exhausting in a spot that is dangerous, they will go out before they get very far.

QUESTION: Don't you think it would be well to tell about the efficiency of the type of bell horn, which increases the efficiency of the house approximately 80 per cent?

MR. ROSS: I have not seen a figure as high as that. However, the efficiency is increased substantially when a bell mouth is put onto the end of this hose. In fact, almost any shape helps a great deal. ~~This plate holds the most efficient type of hose which you can use for ventilation purposes, and~~ A flaring mouth or bell mouth, or ~~almost anything~~, even a straight flange across the end ~~of this~~, will help to extend ~~that~~ the zone of influence over what it is where the plate ends. It sometimes is difficult to adopt that on a local exhaust, since the bell mouth might then interfere with carrying it around and getting into tight places.

QUESTION: How about the four-inch hose?

MR. ROSS: The four-inch hose is a matter of choice, ~~between three and four inches.~~ The four-inch hose is, of

...more difficult to handle the tube such as we have here because it would not stay where it points. It has to be held as it is lying along the deck. But the metal hose, such as we have in this vacuum cleaner, is better in that respect. We do not advocate the use of the one or the other. I simply mention that it is possible for the welder to prop this thing up in the general vicinity of his welding job.

QUESTION: But he could not hold it six inches from his arc. It would be impossible.

MR. ROSS: It depends, of course, on where he is welding.

QUESTION: Suppose he has to do some other welding, some side plate welding, he would have to rig up a little gadget to hang it there. He might do that.

MR. ROSS: Yes, he might do that. He must use his ingenuity and see if he cannot hold it close to his arc. If he cannot use the local exhaust, why, of course, he will resort to ventilation by dilution.

QUESTION: That is what we do, or we try to do it.

MR. ROSS: Yes. As a rule, you will find it is going to require a combination of both.

QUESTION: How close can you get that hose to the arc before it has any effect on the welding process?

MR. ROSS: The hose should be within six or eight inches of the arc.

it is particularly desirable to use local exhaust, when the operation is on zinc, in other words, galvanized metal, or when it is on painted metal. It is not at all unusual in maritime yards where some of the fittings and some of the places to be painted with red lead and later welded, and the weld after that being painted once again, and, of course, those fumes that are generated in that process should be brought out, and they should be brought out at the point of their generation so they won't be out in the department contaminating the whole working space. The local exhaust is particularly good for cold weather, since it does not cause air drafts of any particular amount, and does a good clean job.

QUESTION: Does it take two men to operate that gadget?

MR. ROSS: That is a very good point.

QUESTION: I say that, because where I come from we have a pretty small inner bottom and pretty small forepeaks, and sometimes we have to try to squeeze three welders down there and half a dozen other people want to come down and look at it, and so forth, and I know if I try to get six welders in there and a man to help each welder, I will have to make the ships bigger or make the men smaller.

MR. ROSS: The question is: Does it take two men to operate this local exhaust, and the answer is, "No." It is a

OK

Now, there is another trick which we can use the first time on our recent inspection of some of the yards on the West Coast. Let us take a look at this. It is simply a ~~little~~ vacuum cleaner which has the metal hose attached to it on the ~~left~~ hand side, and it demonstrates very clearly that a vacuum cleaner bag will pick up welding fumes and hold them. This does not require any exhaust ~~to take your fumes~~ to the outside, ~~but~~ the fumes are drawn into the vacuum cleaner, ~~and~~ are trapped in the bag, and they stay there. Let us take a look at this and see how that works. ~~Start that up again, please.~~

(There was a demonstration with the vacuum cleaner drawing off the fumes from the welding.)

MR. ROSS: Now, that is our welding demonstration which we wanted to show you. ~~If~~ Do you have any questions? ~~on this, we have quite a large group here, but I am sure this would be an appropriate time to discuss it.~~

QUESTION: Does that bag hold zinc fumes?

MR. ROSS: Yes, it does.

QUESTION: It is proposed then that that might be used in tough spots?

MR. ROSS: Yes, that might very well be used in a tough spot. It is really quite an ingenious little affair. It is something we have seen only once, but there is no reason it could not be adapted for use in your yards.

words, that is a three-inch hose, six inches from the end — we have drilled a little hole approximately 3/16 of an inch in diameter, and with the aid of that hole we can establish what the suction pressure is in that hose, simply with this little monometer.

The procedure is to insert this tube into the hole which you have drilled in the hose, and if the hose is a three-inch hose, which we have here, and that is, of course, the standard diameter. A two-inch difference in the water leg of this monometer — that probably is not very clear to you if you are not familiar with the use of a monometer, but we can take it up later in detail if you care to — the two-inch difference in the height of this water leg represents 200 cubic feet per minute through the three-inch hose.

Now, that is not true of a hose of another diameter. The height of the water leg will be different, but it can be determined by a very simple arithmetical procedure, and simply with the aid of this little piece of glass tubing, and a 3/16 inch drill you can go through your shipyards and find out whether your hoses are pulling enough air so the zone of influence will reach out and get the fumes away from the welding operation. Six to eight inches from the arc sounds unreasonable, since a man will probably make a bead so that he will be in the zone of influence throughout the length of one of his wires.

Now, as you all know, it is not enough for a local exhaust hose to be held in the same compartment with a welding operation. That simply provides the elimination of approximately 200 cubic feet per minute from that compartment, and does not even begin to take the welding fumes away. If, on the other hand, this hose is held in close proximity to the welding operation it will pick up almost 100 per cent of your fumes, and before they ever get a chance to contaminate the working space in which your welding operation is being carried on, they are outdoors.

Suppose we start up this welding operation. First of all, we will show you that if the hose is held close enough to the welding operation it will pick up the fumes. If the hose is not held close enough to the welding operation the fumes will be disseminated into the room.

(Here followed a demonstration of welding.)

MR. ROSS: Now, you can by a simple device find out whether the hose in your own yard has enough pull so that that zone of influence reaches to the arc.

Yesterday afternoon, John Ege and I went down to a place where neon signs are manufactured, and we asked a fellow if he had an old piece of glass tube. He did, and we made this little manometer which you see here, which you see is a piece of straight glass tube bent into the shape of a "U". Now, about two diameters from the end of this hose --in other

which you think is doing a perfectly fine job, we have no intention whatsoever of upsetting the applecart, but there are yards which have come to our attention, and undoubtedly others which did not, where the ventilation program may possibly lack certain features, and that is the reason we propose these ventilation standards. ~~In other words, if your~~ ventilation in your yards, if your ventilation superintendent -- if you are not he, you are to be congratulated -- if the ventilation is poor, you, unfortunately, will be the fellows who will have to stand the gaff, I am afraid.

Now, what we propose to do here is for our welder to strike an arc and show you exactly how the fume which is generated from that arc can be drawn away from the vicinity of the welding operation, what the right way to do it is and what the wrong way to do it is.

We have down here to my left a fan which has been lent to us by the Coppus Fan Company in Worcester, Massachusetts. They have also provided us with a length of flexible rubberized fabric exhaust tube, which is on the further end of our fan. We bring that out in our minimum ventilation standards as an accepted method for discharging fumes, and also as a good method for introducing fumes for general ventilation.

The hose on the intake end of this fan is a rubberized flexible metal hose used exclusively for local ventilation, local exhaust.

(Here followed a demonstration of welding.)

To preface our demonstration let me say just a word or two about the ventilation program which is covered in some detail in the minimum standards which you now have. Our interest in ventilation, of course, is considerable, just as yours is, since most of the health hazards we have been discussing today, can be controlled by ventilation.

Now, our prime concern, I think, with our ventilation, is the elimination of welding fumes, and that is what we are going to show you here today with this little welding set-up we have.

I do not think in view of our combined audience here that we should go through our section on ventilation standards. I think perhaps we will have an opportunity to take that up separately with the safety engineers who are more concerned with it. However primarily interested in it. I might point out in our ventilation standards, the second paragraph, which says, "The maintenance of proper working conditions shall be the responsibility of the safety department, whose staff shall work in close cooperation with the welding, paint, and electrical departments."

That is putting it up to you safety men. It is rather a labor of love for you. Certainly there won't be any other reward except a better yard. If you already have a ventilation set-up in your yard of which you are proud and

55k inhaling of fumes is prevented. The only cure that we can suggest, or the best one, is ventilation with local exhausts supplied near to the job.

As to whether you are getting away with it or not, whether you are having enough ventilation, it is extremely hard to state without some air samples, and we would like at this point to show you the demonstration that we have arranged here now, and we will let Mr. Ege describe how it can be sampled. After we have given that demonstration, then the discussion may continue.

13 The welder that the Maritime Commission has loaned us will give a little demonstration right here on the table with the use of the local exhausts, and then Mr. Ege can follow by showing you the sampling meter which we would propose be applied by the safety engineer at the yard.

MR. MORWICK ROSS, (Ensign, Boston, Massachusetts): We will leave it to your judgment whether we have taken proper precautions in this matter of welding. If there is one time proper safety precautions should be taken, this is it, because we have a very discriminating audience. We are assured by the American Optical Company, which has been kind enough to supply this little shield here, that there would not be a soul in the audience who would have an eye flash. If there are any such cases as a result of this demonstration, please tell them and not us.

department.

MR. JOHNSON: It says under (f) you say, "proper selection and placement of employees according to physique, experience, and intelligence, and for the purpose of securing or giving information that will tend to control existing or potential accident causes." From a labor standpoint, I would like to add there, "except in instances where a local union supplies the man."

CHAIRMAN ROCHE: That is going to be taken care of, we hope. There is a conference going on now with the A. F. of L. and the C. I. O., and other unions, if there be any, and the management representatives, which tend to smooth out that point, and I think we will have a lot less trouble with that for which every one of us is thankful.

Then, if there is no objection, we will add the word "health" in paragraph (j).

(k) Initiating activities that will stimulate and maintain the interest of employees in safety.

(l) Acting as secretary of all safety committees and in such capacity he shall prepare an agenda for each such meeting covering the business to be discussed and, he shall prepare for the record, minutes of each such meeting.

MR. SNIDER: That is impractical in many shipyards, according to your committee setup, and according to the number of hours in a day.

MR. ROSS: That is a good point. As a matter of fact, we have paid a great deal of attention to innerbottoms. We have all but slept in them at one time or another to see what the conditions are in there, and I will agree with you, it is not the easiest thing to use these coils of hose in that confined space. Again, the circumstances will govern the proceedure. I think if you get the hose to wind in among the manholes of your flooring, that will possibly do it. But it is a good point.

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course, a little more bulky, and possibly would not be so easy to get into tight places. But on the other hand it offers lower resistance to air flow than does the three inch.

QUESTION: I wanted to ask a question. About four years ago, I was in Jacksonville, Florida, in a dry dock at Merrill Stevens. We were repairing a ship down there, and they had five or six welders in the bottom of an innerbottom, and they had a large induced draft fan. It was sitting right where the welder was in the inner bottom without any general ventilation, and all he did was just as fast as these six welders were working, it would bring those fumes right up through the hole like that. Would that be a good idea, to use something like that, or is this better.

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QUESTION: Don't you think it would be well to tell about the efficiency of the type of bell horn, which increases the efficiency of the hose approximately 80%?

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MR. ROSS: It depends, of course, on where he is welding.

QUESTION: Suppose he has to do some other welding, some side plate welding, he would have to rig up a little gadget to hang it there. He might do that.

MR. ROSS: Yes, he might do that. He must use his ingenuity and see if he cannot hold it close to his arc. If he cannot use the local exhaust he will resort to ventilation by dilution.

QUESTION: That is what we do, or we try to do it.

MR. ROSS: Yes. As a rule, you will find it is going to require a combination of both.

QUESTION: How close can you get that hose to the arc before it has any effect on the welding process?

MR. ROSS: The hose should be within six or eight inches of the arc.

I might mention as a result of Dr. Rieke's question that it is particularly desirable to use local exhaust on galvanized iron, or when it is on painted metal. It is not at all unusual in Maritime yards for some of the fittings and plates to be painted with red lead and later welded, and the weld after that is painted once again. Those fumes that are generated in that process should be brought out at the point of their generation so they won't be diffused throughout the compartment, contaminating the whole working space.

QUESTION: Does it take two men to operate that gadget?

MR. ROSS: That is a very good point.

QUESTION: I say that, because where I come from we have pretty small inner-bottoms, and pretty small fore-peaks, and sometimes we have to try to squeeze three welders down there and a half a dozen other people want to come down and look at it, and so forth, and I know if I try to get six welders in there and a man to help each welder, I will have to make the ships bigger or the men small.

MR. ROSS: The question is: does it take two men to operate this local exhaust, and the answer is, "No". It is a

Now, there is another trick which we saw for the first time on our recent inspection of some of the shipyards on the West Coast. Let us take a look at this. It is simply a vacuum cleaner with a metal hose attached to it on the intake side, and it demonstrates very clearly that a vacuum cleaner bag can pick up welding fumes and hold them. This does not require any exhaust duct to take fumes to the outside, for the fumes are drawn into the vacuum cleaner, are trapped into the bag, and they stay there.

(There was a demonstration with the vacuum cleaner drawing off the fumes from the welding)

MR. ROSS: Now that is our welding demonstration which we wanted to show you. Do you have any questions?

QUESTION: Does that bag hold zinc fumes?

MR. ROSS: Yes, it does.

QUESTION: Is it proposed then that that might be used in tight spots?

MR. ROSS: Yes that might very well be used in a tough spot. It is really quite an ingenious affair. It is something we have seen only once, but there is no reason it could not be adapted for use in your yard.

a hole approximately 3/16" in diameter and with the aid of that hole we can establish what the static pressure is in that hose. Two inches difference in water levels of the manometer represents 200 c.f.m. through the three inch hose.

This will not be true of a hose of another diameter, but by a simple calculation we can translate the manometer readings into volumes of air handled. Thus, with the aid of a manometer and a 3/16" drill, you can make a complete survey of the efficiencies of the exhaust systems on the ships under construction in your yard.

Now, as you all know it is not enough for a local exhaust hose to be held in the same compartment with a welding operation. That simply provides the elimination of approximately 200 c.f.m. from that compartment and does not even begin to take the welding fumes away. If, on the other hand, this hose is held in close proximity to the welding operation it will pick up almost one hundred percent of the fumes.

Suppose we start this welding operation. First of all, we will show you that if the hose is held close enough to the welding operation it will pick up the fumes. If the hose is not held close enough to the welding operation, the fumes will be disseminated into the room.

(Here followed a demonstration of welding)

MR. ROSS: Now, with the help of a "U" tube, which can very easily be made from 1/4" glass tubing fifteen or twenty inches long, you can find out whether the local exhaust hoses in your own yard, are exhausting enough air. About two diameters from the end of this hose, we have drilled

one which you think is entirely adequate, we have no intention whatso-ever of upsetting the apple cart. There are yards which have come to our attention however, and undoubtedly others which have not, in which the ventilation program lacks certain fundementals to make it satisfactory, and that is the reason we propose these standards.

Now, what we propose to do here is to show the right and the wrong way to ventilate a welding operation.

We have down here to my left a fan of approximately 200 c.f.m. capacity with a length of lexible rubberized fabric duct which is on the discharge side of our fan. This duct is described in our minimum standards as an accepted method for discharging fumes and also is a means of introducing air for general ventilation.

The hose on the intake end of this fan is a three inch diameter flexible rubberized hose used exclusively for local exhaust.

To preface our demonstration, let me say just a word or two about the ventilation program which is covered in some detail in the minimum standards which you now have. Our interest in ventilation is considerable, just as yours is, since most of the health hazards we have been discussing today can be controlled by ventilation.

Now, our prime concern with ventilatich is the elimination of welding fumes, and that is what we are going to show you here today.

I do not think, in view of our combined audience, that we should go through our section on ventilation standards. We shall have an opportunity to take that up separately with the safety engineers who are more concerned with it. However, I might point out, in our ventilation standards, the second paragraph which says, "The maintenance of proper working conditions shall be the responsibility of the safety department, whose staff shall work in close cooperation with the welding, paint, and electrical departments."

That is putting it right up to you safety men. It is rather a labor of love for you. Certainly there will not be any reward other than that of a cleaner working atmosphere. If you already have a ventilation set up in your yard of which you are proud, and

MR. MORWICK ROSS (LEHIGH, BOSTON, MASSACHUSETTS): We will leave it to your judgement whether we have taken proper precautions in this matter of welding. If there is one time proper safety precautions should be taken, this is it, because we have a very discriminating audience. We are assured by the American Optical Company, which has been kind enough to supply this little shield, that there would not be a soul in the audience who would have an eye flash. If there are any such cases as a result of this demonstration, please tell them and not us.

Corrected Pg. 125
page 114 - 125

I raised as a question, one, the probability of tracheobronchitis from welding; is it due to welding fumes? Secondly, is it possible and has it happened in other shipyards over the country that definite statements have been made that electrocution can occur from welding machines?

I would point out that we have several thousand welders. They have welded for sixteen months through rain and shine, wet and dry. So far, this is the first death, to my knowledge, that we can ascribe to electrocution from a welding machine. It was an alternating current machine with 300 amperes, and the contact voltage of 80 volts. I ask that very definitely, is it possible, is it probable, and has it happened in other shipyards?

I disputed with the autopsy surgeon the cause of death and also his assumption that the tracheobronchitis was due to the inhalation of fumes. His statement was simply that there must be something in the ordinary fumes from welding on steel which was causing that in our workmen. I have some other theories on it, but I would rather listen to your discussion of those points first.

CHAIRMAN DRINKER: My own experience with welding over a number of years, both galvanized welding and black iron, is that in the case of black iron if it is done in a confined space without ventilation, trouble is extremely likely. Galvanized iron is likely to make trouble anywhere, unless the

tain suits coming up at us.

The question has been raised repeatedly as to what there is in welding fumes. We know there is something in the welding of galvanized pipe. The zinc fumes we do not encounter, to speak of, in the Liberty ships. We have had very little trouble that I feel to be genuine, as far as zinc fevers are concerned. However, it repeatedly is raised and has been for months, and continues to be raised at that point, as to whether there is or is not some substance in welding fumes on plain iron plate, with ordinary welding rod, which can or does cause either acute or chronic tracheobronchitis. I would like to raise that point for Dr. Drinker's discussion.

The second point is this: We have recently had a death the circumstances of which I should perhaps tell you. I was the first one at the scene to remove the deceased individual and checked. He had been welding. The ventilation was good. He was near the open air. At the autopsy there was nothing found to explain death. He did have burns across the forehead and across the cheek. The autopsy surgeon found the cause of death to be electric shock. He also found a bright red tracheobronchitis. The lungs with a little edema and redness. The pathologist made the statement that acute tracheobronchitis was assumed to be due to the inhalation of welding fumes.

length of time or in any great amount causes liver damage and kidney damage and so forth.

Asbestosis, which I have already mentioned, on Page 3, [illegible] is something which will not appear very shortly. It will take the matter of a year or two years for asbestosis to develop, perhaps, but the danger is present in some few yards and should be recognized. It is very similar to silicosis, I might say, - shortness of breath and a tightness around the chest, and so forth.

I think that is all I need mention. I want to remind you again/of these basophilic aggregation tests/which we have here which you can get, and I will now turn the meeting over to Dr. Drinker.

CHAIRMAN DRINKER: In order to show you what we want do, we may have to double up a little bit with the safety engineers and postpone our demonstration so they can see it at the same time.

We would like to hear some discussion on these items that Mr. Nelson just took up, on welding, especially.

DR. RIEKE: Dr. Drinker, I came back with great anticipation because of a discussion we have had in the last few days in our shipyards with the electricians partly in relation to a welding machine and partly in relation to welding fumes. We are very sensitive about welding fumes in our place right now, and have been for many months, but particularly because of

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a bad actor. In many cases we have found sprayers operating without the proper protection, and in most cases their helpers have not any protection at all. A man would be standing beside a painter, and the painter would be wearing a respirator, and the helper not any, and breathing in this fine mist of red lead paint in great volume. Now, obviously it is dangerous. The absorption of lead through inhalation is much more rapid than that by injection, and your lead poisoning danger is intensified.

I would like to call your attention to fiberglas on Page 3-C. There have been many misapprehensions about fiberglas, and the main one has been the danger of breathing particles of fiberglas which is used in insulation in ships. As far as has been determined, there are no ill effects from inhalation of particles of fiberglas. As you know, it is a silicate, not a silica, not free silica at all; therefore, it cannot cause silicosis in any way. The particles of fiberglas are irritating to the skin, however. That is, they will work their way into the skin, although you may acquire a sort of a toughness to that after a while, and that must be considered in men who complain about their skin condition from working with it.

The cement used in fiberglas is very often one carrying carbon tetrachloride, which is another source of danger. Carbon Tetrachloride, when inhaled, as you know, for any

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a bunch of pamphlets giving in detail the technique of doing the basophilic aggregation tests. As you know, it is not a specific test. In other words, it will not indicate lead poisoning alone. A basophilic count is also obtained in other disorders such as diabetes, and others. I have these bulletins; if you would like to come up and get one after the meeting, you are welcome to them.

Where any large number of workers must be checked for lead poisoning, this method of examination is probably the most feasible. Where the counts are suspicious, then you may confirm your suspicions with a urinalysis or blood analysis.

I might mention a word about laboratory facilities. Naturally, laboratory facilities will not be available to each of you in your locality. At least, you might have difficulty in getting them. And the techniques used in doing lead analyses might not be used by the operators of the laboratory. So we propose to set up laboratories to be operated under the Maritime Commission were you can send your samples and have the analysis reported back to you. That is, if you find a man who has suspicious signs of lead poisoning, his exposure or his symptoms may confirm it by a urine sample.

Section C takes up these occupational diseases more in detail and the repetition of those I have already mentioned. such as lead poisoning, spray painting, which is particularly

a white count from twelve to fourteen thousand within twelve hours after the exposure, and there are other interesting points connected with it.

Now, the Liberty ships do not have very much galvanized welding. Only in the pipes is galvanized metal used. Therefore, those concerned only with Liberty ships may not find that to be a major problem. It is, however, in Navy contract yards, where they make destroyers and other Navy ships, where galvanized metal is used throughout.

Solvent vapors in a shipyard are encountered in spray painting. The various kinds of paints apply to the paint, petroleum spirits, and so forth.

In cementing there are certain cements containing toxic solvents. In most cases the safety engineers are unaware that the solvent is toxic. Carbon tetrachloride and benzine are frequent offenders in that respect.

The acid gases and mists are, in turn, in pickling, cleaning and degreasing operations, but they are not common in shipyards, but they must be considered where they are present.

Alkali mists you can dispense with as being in a class with the acid gases and mists.

Asphyxiating atmospheres need no explanation; oxygen breathing, carbon monoxide, and so forth.

Now, I have up here in connection with lead poisoning

posure is about the maximum allowable limit for lead fumes; as you probably know, the limit is about one and one-half milligrams of lead per cubic meter of air. In our tests which we ran we had as much as thirty times the maximum allowable limit of lead created in the atmosphere due to welding on painted surfaces. So there may be trouble from that in the future, we cannot say, but it is something to watch out for in welders.

Zinc oxide poisoning or the zinc chills, may be caused from welding on galvanized surfaces, zinc coated on steel, the heat of the arc against volatilized steel, the zinc burns, really, and produces this oxide, which when inhaled in sufficient quantity results in metal fume fever. After exposure through heavy concentration, the welder may go hom and after a few hours begin to have alternate chills and fever and a general washed out feeling and become really ill. It is a temporary thing, however. After a night of discomfort, the next morning he is probably able to go to work, and so lost time is not a large item. It does, however, occasionally cause lost time of a day or two, but the reduction in the efficiency, due to his washed out feeling, is something to contend with and, of course, the effects on the man's morale are very bad indeed.

You cannobtain bulletins on zinc oxide poisoning, or metal fume fever, from the . Other results a

47X if [illegible] With silica dust, of course, the result of exposure after a long time, is silicosis. I need not go into details of that. You doctors know I am not a physician, by the way, and I do not want to pose as one.

11 Lead dust from paint mixed in the paint shop may result in lead poisoning because of inhalation of the lead.

Asbestos: In many yards, asbestos pipe coverings are used. They are shaped and formed at the shipyard, usually, by a sub-contractor, and cutting, pounding and sewing of the asbestos cloth and insulating material is done. Now, where there is any extensive cutting, you will find there is a dust hazard if the substance contains asbestos. All of them do not contain asbestos. Here again we point to the regulations on safety engineers and physicians knowing what is in the substances and chemicals used in the yard.

The next one, metal fumes and smoke, from welding on red lead painted surfaces. There is a definite hazard of lead poisoning there. We have seen in shipyards this being done very often. The heat of the arc on steel which has been volatilized has, most of it, lead and zinc oxide paint, and makes a fume which when inhaled is absorbed rapidly by the welder, and if the exposure is carried on after a length of time, that is, day after day he does that sort of thing, the chances are he will contract chronic lead poisoning.

We have made some tests and we can prove that the ex-

We have taken longer to go through this than we intended, and I am afraid it will make us a little short in the subsequent program, but our three officers here all h something to tell of importance, and we will let them go ahead. Mr. Nelson will speak first.

MR. K. W. NELSON, (Ensign, U.S.N.R., Boston, Massachusetts): Since our time is very short and we must hurry along, we will merely skim through the subsequent sections of this manual, and in case any questions come up regarding our minimum standards concerning dust and fumes, and so forth, we would like to answer them here and now, or have your views on them and your reactions to the suggestions we have made. This is mostly for the safety engineers, but we think that you, too, should have an idea of what the problems are in yard and how to control them.

As far as dust in shipyards is concerned, it is not a common problem. Most shipyards do not do any sandblasting, but some do. Where they do have it, we have seen it done very badly. For instance, sandblasting out in the open, sandblasting in a room with no provisions made for the control of the dust at all, sandblasting without the proper protective equipment for the operator, no hood, faulty respirator, and so forth. The protective devices we have mentioned here will control the problem.

The best bet, of course, is a complete sandblast outf

amount carbon tetrachloride causes serious liver damage, and fatal poisoning cases have been reported.

Asbistosis, which I have already mentioned, on page 4-C, is a disease which will not appear, perhaps, until a year or more of exposure to asbestos dust, but the danger is present in some yards and should be recognized. It is similar in its effects to silicosis, causing shortness of breath and a tight feeling around the chest of the victim.

I think that is all Ineed to mention. I want to remind you again of the basophilic aggregation test booklets which we have here for you. I will now turn the meeting over to Dr. Drinker.

CHAIRMAN DRINKER: In order to show you what we want to do, we may have to double up a little bit with the safety engineers and postpone our demonstration so they can see it at the same time.

We would like to hear some discussion of these items that Mr. Nelson just took up, on welding, especially.

DR. RIEVE: Dr. Drinker, I came back with great anticipation because of a discussion we have had in the last few days in our shipyards with the electricians partly in relation to a welding machine and partly in relation to welding fumes. We are very sensitive about welding fumes in our place right now, and have been for many months, but particularly because of cer-

In too many yards we have found sprayers operating without the proper protection, and in almost every case their helpers have not been protected from the inhalation of the lead mists. The absorption of lead through inhalation is much more rapid than that taken in by ingestion, and the danger of poisoning is intensified.

I would like to call your attention to fiberglas on page 3-C. There have been many misapprehensions about fiberglas, and the main one has been the possible danger of breathing particles of Fiberglas when applying it to ships as insulating material. As far as has been determined, there are no ill effects from inhalation of particles of fiberglas. As you may know, it is a silicate, not a free silica at all; therefore, it cannot cause silicosis in any way. The particles of fiberglas are irritating to the skin, however. That is, they work their way into the skin and may produce a mild dermatitis. An immunity, or toughness, is usually acquired after a while, and that tolerance must be considered in treating men who complain about their skin condition from working with fiberglas.

The cement used in fiberglas installation is very often one containing carbon tetrachloride, another source of danger. When inhaled for any length of time or in any appreciable

pamphlets giving in detail the technique of doing the simple basophilic aggregation tests. As you know, the test is not for lead poisoning. A high basophilic count is also obtained in other disorders such as diabetes. I have these bulletins; if you would like to get one after the meeting, you are welcome to them.

Where any large number of workers must be checked for lead poisoning, this method of examination is probably the most feasible. Where the counts are suspiciously high, a diagnosis of lead poisoning may be confirmed by a urine or blood analysis.

I might mention a word about laboratory facilities. Naturally, laboratory facilities will not be available to each of you in your locality. At least, you might have difficulty in getting them. And the techniques used in doing lead analyses might not be used by the operators of the laboratory. So we propose to set up laboratories to be operated under the Maritime Commission to which you may send samples directly and have the analysis reported back to you. ~~Thereby, if you are in doubt as to signs~~

Section C takes up these occupational diseases more in detail and is a repetition of those I have already mentioned. However, I would like to emphasize particularly the danger of lead poisoning present in spray painting with red lead.

The construction of Liberty ships does not involve much galvanized welding. Only in piping is galvanized metal used. Therefore, those yards concerned only with Liberty ships may not find metal fume fever to be a major problem. It is a problem, however, in Navy contract yards where destroyers and other Navy vessels are built. Navy specifications demand galvanized steel as a preventive measure against corrosion.

Solvent vapors in a shipyard are encountered in connection with painting operations. The various solvents in paints include petroleum spirits, turpentine, toluene, naphtha, and others.

In cementing and paint cleaning there are certain preparations containing toxic solvents. In most cases the safety engineers are unaware that the solvent is toxic. Carbon tetrachloride and benzene are frequent offenders in that respect.

The acid gases and mists are found in pickling, cleaning and degreasing operations. They are not common in shipyards, but they must be considered where they are present.

Alkali mists can be considered in a class with the acid gases and mists.

Asphyxiating atmospheres need no explanation; oxygen lack and carbon monoxide, generated by rivet pots, are most important.

Now, I have here in connection with lead poisoning

lead from welding lead-painted steel is above the maximum allowable limit for lead fums. As you probably know, the limit is one and one-half milligrams of lead per ten cubic meters of air. In our tests we found as much as thirty times the maximum allowable limit of lead present in the atmosphere surrounding the welder. Whether or not there may be widespread trouble in the future from this practice, we cannot say, but lead poisoning among welders is something to watch out for.

Zinc oxide poisoning or zinc chills is a common disorder associated with welding of galvanized steel. The heat of the electric arc burns away the zinc coating, producing a dense white fume of zinc oxide. When the fume is inhaled in sufficient quantity, it causes metal fume fever. After exposure to a heavy concentration of zinc oxide fumes, a welder may go home and after a few hours begin to have alternate chills and fever. His illness is real but temporary. After a night of discomfort, he is probably able to go to work the next morning. Lost time, therefore, is not a large item. However, the disorder does occasionally cause lost time of a day or two, and the lowered efficiency of the worker, due to his washed out feeling, is something to contend with. Also, the effects on the men's morale are very bad indeed.

Bulletins on metal fume fever may be obtained from the U. S. Dept. of Labor, Washington, D. C.

Lead dust from paint mixed in the paint shop may result in lead poisoning due to inhalation of lead pigment during mixing operations.

Asbestos: In many yards, asbestos pipe coverings are used. They are shaped and formed at the shipyard, usually by a sub-contractor, and cutting, pounding and sewing of the asbestos cloth and insulating material is done. Now, where there is any extensive cutting, there is a dust hazard if the substance contains asbestos. All insulating materials do not contain asbestos. Here again we point to the regulation requiring safety engineers and physicians to know the constituents of materials and chemicals used in the yard.

The next item is metal fumes and smoke producedby welding operations on red lead painted surfaces. There is a definite hazard of lead poisoning created in such operations. We have seen it being done in shipyards very often. The heat of the arc on steel which has been painted with red lead paint volatilizes lead in the form of an oxide and makes a fume which, when inhaled, is deposited in the lungs of the welder and absorbed. If the exposure is repeated daily or at frequent intervals, the chances are the welder will contract chronic lead poisoning.

We have made some tests proving that the exposure to

We have taken longer to go through this than we intended, and I am afraid it will make us a little short in the subsequent program, but our three officers here all have something to tell of importance, and we will let them go ahead. Mr. Nelson will speak first.

MR. K. W. NELSON, (Ensign, U. S. N. R., Boston, Massachusetts): Since our time is very short and we must hurry along, we will merely skim through the subsequent sections of this manual, and in case any questions come up regarding our minimum standards concerning dust and fumes, and other occupational disease factors, we would like to answer them here and now, or have your views on them and your reactions to the suggestions we have made. This part of the manual is intended for use by safety engineers, but we think that you, too, should have an idea of what the problems are in the yard and how to control them.

(Manual is followed point by point)

As far as dust in shipyards is concerned, it is not a widespread problem. Most shipyards do not do any sandblasting, some do. Where they do have it, we have seen it done very badly. We have seen sandblasting out in the open, sandblasting in a room with no provisions made for dust control, sandblasting without the proper protective equipment for the operator: no hood, faulty respirators. The protective devices listed in the manual are recommended to control the danger of silicosis.

Corrected copy
Pages 105-111

MR. O'CONNELL: The management has issued an order that the leadermen is responsible for their men getting on the job. If they don't, the leaderman is fired.

DR. REIN: Down at Delta we have two large cafeterias and two so-called mess halls. That is, food is transferred from the cafeteria to the mess halls. We don't have any trouble at all.

CHAIRMAN DRINKER: How about this matter of salt tablets?

DR. REIN: The only trouble with the salt tablets is they take them straight and then they throw them up and then come to us.

DR. SPENCER: I notice in this section you say, "shall inspect and report." How about establishing minimum standards for sanitation? Some of these plants have awfully i sanitary toilets. There is no use looking at them unless you have authority to do so.

CHAIRMAN DRINKER: The medical officer certainly will have authority to do something. If he reports it and it comes up to the Maritime Commission and the Navy, I can promise you something will be done about it.

DR. McCOY: I think there should be a statement made when a boat is up and the men are working on it, that there should be lavatory privileges, both female and male.

CHAIRMAN DRINKER: I think so, too.

get away with it; that is, if we have a quick and dirty, or a diner, you can just get away with a lot of it by being highhanded, if it is insanitary, and get the local health people in. We have never found any trouble with that. Do you gentlemen wish to take any position about the feeding situation? It is a large one; it is an awfully big one; and if we start it now we better have a pretty good idea where it is leading.

I have had several shipyard executives say to me that they would either run a shipyard or a cafeteria, but they would be damned if they would run both.

MR. O'CONNELL: I have never heard any complaint from our people about the way we feed our men. We run in a whole fleet of cafeteria trucks with hot soup, coffee, and things of that sort. They get in the yards just ten minutes before the whistle blows. Everyone seems to be quite satisfied. I have never heard any complaints.

CHAIRMAN DRINKER: I have never been in your yard.

MR. O'CONNELL: I wondered if that was done at other places.

CHAIRMAN DRINKER: I have seen it done in some yards where the fleet trucks brought the milk and some sandwiches and pie.

MR. RELLER: Do you have much trouble in jumping the

and the shipyards, except the shipyards have put up shipyards with no idea of doing any feeding.

DR. RIEKE: As far as we are concerned, we put up cafeterias and found them inadequate to feed twenty thousand men in a half an hour. It was purely from a personnel standpoint. You can say that you cannot see that there is any difference between feeding a steel plant and a shipyard. I say there is a great deal of difference, partly because there is a war on. We are unable to get personnel.

CHAIRMAN DRINKER: That has a lot to do with it.

DR. RIEKE: Secondly, we found there was too much abuse of the cafeterias. In other words, our leadermen, superintendents, foreman and everybody else knocked off at 11:30, in order to get into our facilities at 12:00, and we just could not handle twelve thousand or any small portion of them in the provided lunch period, and we felt it was just not worth the effort to try to take care of part of them, and we simply stopped it altogether in the yards, and we have set up very well policed cafeterias just outside the fence at which the company employees can eat before going on shift or after shift at very reasonable prices. That has been the most successful at our place.

And then the inspection, I think, should be done very carefully under the shipyard control of the feeding facilities I do not know what you would do there.

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and the Navy does not compare at all with what you find in a modern manufacturing establishment or a modern mining community. It is not anything like it. Whether the yards want to go into feeding or not, I don't know, but what they are doing now is certainly not very good.

10 DR. CROFT: I talked it over with Mr. Page, who is the treasurer of the St. John's Shipbuilding, and for years has been connected with large corporations, and some coal companies in Pennsylvania, and he seemed to think it would be a very difficult problem to get someone who was capable of doing it and doing it right.

CHAIRMAN DRINKER: I don't see any difference in feeding a shipyard and a big steel company.

DR. CROFT: But he said there were very few concerns capable of handling it. He did not seem to think the local people could do it.

CHAIRMAN DRINKER: The chain cafeterias can do it. I can take any of you gentlemen to establishments who are running twenty-four hours where the employees get anywhere from twenty minutes to half an hour to eat, and they get a darned good meal, and an inexpensive one, and an inexpensive place to eat it.

DR. GARFIELD: Are they new?

CHAIRMAN DRINKER: One of them was completed in the last two years. I can't see the slightest distinction between them

DR. RIMMS: As I say, that is a problem in the South, and they will have to have it.

MR. RELLER: We are setting up separate rooms for our people.

CHAIRMAN DRINKER: Is there any special feeling on the part of this group on the feeding situation in the yards? Personally, I think it is a mess in most of the places we have seen it. I think the feeding in the yards is by and large very badly handled, almost without exception.

DR. CROFT: I would like to get some ideas on that. They have no feeding facilities now in our yard at all. They are just in town, and there were a lot of little places mushroomed up around near there.

CHAIRMAN DRINKER: Quick and dirties and diners.

DR. CROFT: Quick and dirties. The city board of health has been right down my neck. I have done my best to try to get them to put some place in the plant. Originally, in their plans they had it, but I don't seem to get to first base.

CHAIRMAN DRINKER: I have not gotten half way to first base and I have done a good deal of hollering on this. I do not think we can get to home plate unless this group does something about it. If you do something perhaps we can get somewhere. I have spent most of my professional life and have done a lot of consulting work in the last fifteen or twenty years on the feeding situation in the maritime yar

usually the nurses like a separation from the female patients In other words, you have two female lavatories, and then the doctor and the staff, the male nurses, want separation from the male patients. Supposing back on Section A, Page 1, we increase those facilities to take care of what has been suggested now; would that be satisfactory? Would everybody be in agreement with that?

DR. RIEKE: Doctor, I would like to suggest what our experience has been. We have about 10 per cent of our payroll in women. I am sure it will probably go to 30 or 40 per cent if the war lasts long enoughs. We have provided in our building, as you remember, an extra women's treatment space. We have not as yet found it necessary to use that, except where we do have a disrobing case, or a case brought in by ambulance. I think that is entirely a local problem. I think the space should be provided.

CHAIRMAN DRINKER: How about the colored or whites?

DR. RIEKE: I am not in a position to argue that. It is a local problem as to whether you have to have separate space for women. We have not started to use it yet, except in a minor degree.

CHAIRMAN DRINKER: If we do not have such separation for colored and whites in the Southern yards, there will be a first class mess.

preparation.

CHAIRMAN ROCHE: I will tell you, when you get a large number of them, it means that you have got to get some laundry to put this business in for you.

MR. SINNOTT: I know around New York, they have a laundry that does that.

CHAIRMAN ROCHE: That is right, but none of the duPont products now, so far as I know, laundered in the regular way will be any good after laundering. They have to be reflame proofed, and that business of special preparation, it looks to me like adding more cost to it.

You say who should pay for it? Frankly, I do not know. I think that depends upon the local conditions. Most of the magnesium plants which employ many thousands more people than we do, pay for the laundering and the re-flame proofing of the shirts.

It just strikes me that this paragraph means that the company is to pay for the laundering.

CHAIRMAN ROCHE: It does not say that, but it is left up to them. As a matter of fact, we come to that under "women" a little later on, and that is left up to the yard to decide one way or the other.

9.24 Safety shoes with leather soles and heels.

MR. FRAZIER: Does this cover the welder's boots that you are speaking of here?

tect men working nearby from the harmful effects of the electric arc rays should be used on all electric welding operations.

Of course, you are going to have difficulty in some spots, but where you can use them, use them, and that plywood sheet business I saw on the West Coast is possibly the cheapest and the best screen of any. It is two plywood sheets about 14 x 16 joined together with a couple of rings, an inch and one-half inch in diameter, and the holes are drilled in the wood so that when you put them together here they are self-supporting, with no joints from which light can leak through. They overlap, and it makes a good solid shield that can be used, and it is very light, and I found other shields that have weighed as high as two hundred pounds. the men would not use them, because they would not carry them around, but they do carry the plywood shields around, and it is a swell job.

MR. GRAHAM: Do not they object to the extra piece of equipment that they will have to move?

CHAIRMAN ROCHE: That does not weigh any more than this (indicating).

MR. GRAHAM: The way we have over come that is by suggesting that they bracket the screen to hold the welding rod box, and we put a hood on the top. We have four pieces of screen, and I think you will find that that will work out

CHAIRMAN ROCHE: Yes.

MR. FRAZIER: You know they were stopped in production on those about three months ago, and in order to get the assistance of a body, I think we should write to the War Production Board on that order 217 to get some action on that, because we are unable to get women's shoes.

CHAIRMAN ROCHE: We will go to town on that.

MR. FRAZIER: That is on the order M-217.

CHAIRMAN ROCHE: What do you think about corded heels?

MR. FRAZIER: I think they are all right.

CHAIRMAN ROCHE: All right, I will get a definition of that, and we will put it in there.

MR. FRAZIER: That is, corded soles and heels.

MR. WHITE: Do all welders have to wear safety shoes?

CHAIRMAN ROCHE: Yes.

MR. FRAZIER: Down South they have devised a boot which is being used.

CHAIRMAN ROCHE: If it has a safety sole in there, it is all right.

MR. FRAZIER: That takes the place of having to wear anything above your ankles.

CHAIRMAN ROCHE: That is all right.

9.3 Welding screens, constructed of flame proofed fabric on wood or metal frames, metal on metal frames, or plywood sheets joined by rings, of a size sufficient to pro-

The will move on to the next item, Section 3, Safety Director and Staff.

3.1 A safety director, (title may be safety engineer, safety inspector,) et cetera, and staff shall be appointed for all shipyards having 1,500 employees or more. (See section 3.25 for duties and responsibilities.) The safety director shall report to, and be responsible to the general manager.

MR. R. R. CLARK, (Pennsylvania Shipyards, Beaumont, Texas): I question as to whether or not the staff function should be under general manager. I think a better word would be "top management". In our yards specifically, I do not know how it is with the rest of the yards, but the general manager is principally interested in production. As a matter of fact, he is head of the production department, and as such, I am wondering as to whether or not safety would receive from the general manager in his capacity as production chief, the interest it deserves.

I think safety should be a staff function, and any recommendations of the safety department should come through top management, through the line of authority to the general manager, if he is the production chief.

CHAIRMAN ROCHE: That is a very good point.

MR. BARON D. SNIDER, (Marine Ship Corporation, San Anlitc California): I beg to differ with the remark that has just

word "frequent"? Under 2.26-b?

I know, for example, that you could not get Henry Kaiser to attend many safety meetings, although he does attend them when he is around.

MR. H. R. GREENLEE, (Houston Shipbuilding Corporation): In regard to 2.26-e, I wonder if you really mean that Henry Kaiser every time he walks down in the yard, has to shift into safety shoes.

CHAIRMAN ROCHE: You are damned right I do. Anybody here think that Henry Kaiser should not do that?

MR. GEORGE F. SCHMOHL, (Alabama Drydock and Shipbuilding Company, Mobile, Alabama): In Section E, then is it understood that every person working in the yard should wear safety shoes, et cetera?

CHAIRMAN ROCHE: Yes, and if it is a case where they would be exposed to head injuries, they should be protected. For example, if a person is working where they are not exposed to head injuries, he does not have to wear a hard hat, but if that person is from time to time in a hazardous area, a hard hat should be used.

And by the way, that includes insurance engineers, Maritime consultants, and anybody else who comes in there. I nearly got my brains knocked out in one shipyard, because there were no hard hats.

Are there any other questions or comments? If not, we

5hs says, "In all cases the use of the words 'shall' or 'must' indicates that that compliance with that section of the minimum requirements is mandatory." Why wouldn't it be a good example under 2.26, Section A, instead of saying "necessary protective equipment should be used", say "protective equipment shall be used"?

CHAIRMAN ROCHE: You are absolutely right. That word "should" should be changed to the word "shall".

Are there any other corrections?

MR. HAL FRAZIER, (Houston Shipbuilding Corporation, Houston, Texas): Under 2.26-B, why couldn't there be instead of "frequent attendance at safety meetings" be changed to read, "That management shall be required to attend"?

CHAIRMAN ROCHE: I agree with you on that, but we have got to remember one thing. We are building ships, and we have yards full of busy executives. That does not mean that they are excused entirely from attending safety meetings, but on the other hand, it is not necessary for them to attend every safety meeting to demonstrate an active interest.

I stumble a little over the frequency. I would like to say "regular" rather than "frequent".

MR. FRAZIER: Well, let us put "regular" in there in place of "frequent".

CHAIRMAN ROCHE: Is that satisfactory? Arethere any comments on the use of the word "regular" in place of the

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or department heads, foremen, leader or leadingmen or to any persons in a supervisory capacity that they are considered responsible for accidents which involve employees working under their direction and that they are required to comply with all of the provisions of the accident prevention program in effect in the shipyard.

We will go right through that section, and we will come back to it and ask for a discussion.

(2.26) An active and interested participation in safety through

(a) Review of, and executive action on, safety records.

(b) Frequent attendance at safety meetings.

(c) Acknowledgement of good or bad departmental safety records through personal interviews with department heads.

(d) General letters, for bulletin board posting, addressed to employees and discussions of good or poor yard accident record.

(e) By setting a good example. (Goggles, safety shoes, hard hats and other necessary protective equipment should be used by any executive who exposes himself to yard operations.)

Now, may I have any comments on that section, please? Do not hesitate, please, to get up. If you think it should contain more or should contain less, please let me know.

MR. DAVE KAYE, (Kaiser Company, Incorporated, Richmond Shipyard No. 3, Richmond, California): Under Section 1.3, it

let us know about it, or if there is anything included in here that you think should not be included, please bring that out.

Now, you will remember that we had this previewed, and prediscussed by a committee of 13 men from shipyards all over the nation.

The first paragraph is No. 2, managements part.

"2. Management Part.

2.1 It is absolutely essential, if a successful accident prevention program is to be installed and operated, that top plant management take an active and interested part in the work. The same supervision given any other important activity in the shipyard shall be given the safety program.

2.2 The responsibility of management in so far as industrial safety is concerned shall be considered to include:

(2.21) The provision of a reasonably safe working environment.

(2.22) Training of employees for safety.

(2.23) Establishment of an accident record and reporting system.

(2.24) The appointment, where necessary, of a safety engineer (or a safety director) and staff to install, maintain and properly supervise an accident prevention program.

(2.25) The issuance of instructions to all divisior

PROCEEDINGS

CHAIRMAN ROCHE: This is not an informal meeting, but if you will recall, I told you this morning to take your hair down and your shoes off, and let us go to town. We are going to read over the item No. 1, and we are going to read them over one at a time. We have about two hours to do it, because as soon as we finish here, we are supposed to go down and see the welding and ventilation demonstration in the American Room. So, let us keep our eye on the clock, and discuss down to the point where it is useful.

Now, as you rise for any point of discussion, please give your name, your company, and your city. That is for the record, so that you can get due credit for any suggestions that you might make.

How many of you have read this over?

(Quite a few.)

Are you agreed that we may skip the introduction which is Item

Is there any objection to that? (None)

Now, what we would like above all else is to turn out something informative, but we do not want to turn out an encyclopedia, but I say again that we do want all of the things that you now know are causing accidents in shipyards to be included in the set of minimum standards that will control accidents. And if there is anything left out, please

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UNITED STATES MARITIME COMMISSION
AND
UNITED STATES NAVY

MEETING IN REGARD TO MINIMUM REQUIREMENTS FOR INDUSTRIAL HEALTH AND SAFETY IN SHIPYARDS.

Held in the American Room and Century Room, Hotel LaSalle, Chicago, Illinois, on Monday, December 7, 1942, at two o'clock p. m., Mr. John Roche, National Safety Council, Chicago, Illinois, presiding.

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fast these days, that if we take up much time we wind up behind the "eight ball", so far as our friends across the sea are concerned.

I want to express my thanks to all of the medical men who have been in attendance here, and for all of the work that you have done.

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(The meeting adjourned)

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DR. McCOY: Embedded corneal bodies, where he is using an instrument.

MR. RING: It only says here "foreign bodies in the shall be removed only under the doctor's orders or by methods he has prescribed." If it is not embedded, certainly the doctor can ask somebody else to remove that. If it is embedded, certainly the doctor will give no such orders as that, and if it is done by methods by him prescribed, certainly you can say that if they are embedded you shall not do it. I think it is covered. Let us interpret it as if it is covered anyway.

We will take it for granted, then, that these things are the consensus of the group, subject to the reports of the committee to come in, because we want to know that everybody has had a chance to hammer them as much as they want.

I hope that Dr. McCoy will not take my remarks along that line as being directed in any manner personally. That is a very good point to be brought up.

I want to thank you all very much, indeed, for the excellent and really genuine interest you are putting into this thing. I am really getting proud of this whole thing. I think we have got something here that if it is properly carried through it will be of a tremendous benefit to the shipbuilding industry, and I only regret that we have such a limited time in which to operate, but everything is moving

DR. McCOY: Something that is not covered here is the practice of nurses removing foreign bodies. They are not legally so qualified to carry on that operation. Will they be qualified because of the practice under war, or are they going to be held down technically and slapped behind the bars?

MR. RING: Dr. Drinker here is looking for a section that he says states that nurses are prohibited from that.

DR. McCOY: As a matter of fact, on the West Coast that is the practice.

MR. RING: Dr. Drinker in a very nice and polite and snaky way wants to know whether you read the third paragraph under Section C, that part that says, "For use of safety departments in shipyards; a guide for prevention of industrial disease in shipyards," where it says: "Foreign bodies in the eye shall be removed under the doctor's orders only and by methods he has prescribed."

DR. McCOY: That does not cover it. If I stand over a nurse and tell him he is to remove that foreign body from the eye, that does not cover it, because he is not legally qualified, even though I tell him to, to do it.

MR. RING: You mean if I get a cinder in my eye I am supposed not to ask anybody to put the end of a handkerchief in to get it out unless it is a doctor?

Now, if that is the deal, it is the deal.

Now, Mr. Roche wants to get on with the safety side of it. Are there any objections?

DR. RIEKE: I have one more. On Section C, under "Flash burns," I take exception -- and I may be wrong -- to the statement that, "A flash is a surface eye burn resulting from even momentary unprotected exposure to the welding arc." I object to that use "from even momentary unprotected exposure." It is a small point, but one of the points I have run into repeatedly is the misconception that most arc flashing occurs from one bright arc, and the man runs into the first aid station and says, "Give me some of those magic drops to prevent any trouble." We put eye drops in their eye, and he goes home, and has no trouble. He says, "Boss, those are certainly swell drops for preventing eye trouble." We have through the year had a lot of patients come in to get medicine to prevent them developing symptoms. I think that should be changed to, "A flash is a surface eye burn resulting from undue exposure," or "unexpected exposure to the welding arc."

MR. RING: Do you think even momentary exposure should be eliminated? Why don't you be on the safe side and say "from exposure"? Say "exposure" and you are safe as you can be. Isn't that what the scientists always want to do? They want to be on the safe side, so they make the language so

CHAIRMAN DRINKER: What we found is as you go around in the various yards in some places it was all right to take off the side plates, and in others not. The Maritime Commission itself has no objection to that. They leave it up to the individual yards.

MR. SMITH: That is a definite ruling from the Maritime?

CHAIRMAN DRINKER: They leave it up to the yard.

MR. SMITH: Well, how about cutting a hole through? In other words, is it a standard size, or does a man have to stoop to go through or crawl over, and also additional excess holes for the hose?

CHAIRMAN DRINKER: We found the same thing there, too; that ruling would vary with the yards. They leave a great deal of leeway on that.

MR. RELLER: What can the Maritime Commission do to help us having the Selective Service taking the local doctor from our town? We talked in the medical group about the trouble we are going to have getting doctors to come in to meet this personnel standard we are setting up.

CHAIRMAN DRINKER: That is the very thing we are going to take up and put in a resolution tomorrow in a general meeting. We will answer that definitely. What the result will be, we also hope.

MR. RING: I have not heard any objection to your general medical standards, except as noted here in one or two instance:

haps set forth a general procedure for these institutions to follow for the treatment in such cases.

CHAIRMAN DRINKER: If you will look at the standards will see that we purposely have not prescribed treatment in detail in any single one of them. We prefer not to do so if we can. We would rather leave that up to the individual physician. The yards, by and large, are getting the best medical help they can. From the inspections we made they were good, in our opinion.

MR. SNIDER: We found a serious problem in our particular yard. There were many men who were going to outside sources for treatment when they wake up at night.

CHAIRMAN DRINKER: You mean because they were away from the yard?

MR. SNIDER: Yes, they have not access to it at that time of night.

CHAIRMAN DRINKER: I think that is a point we can discuss in the medical group tomorrow, and we will.

MR. SMITH: I have one question, please, on Page 3-D. You spoke a while ago about ventilation in confined spaces. Three or four sentences there in that are very applicable, to decrease an accident from breathing fumes, et cetera, and the last one, about the side plate, has that been taken up, the side plate being left off? Has that been taken up with the Maritime Commission?

be treated only by the doctor."

CHAIRMAN DRINKER: It says, "or by methods prescribed by him," does it not? It says that somewhere.

MR. FRAZIER: That is in Section C, "effects on workers.

CHAIRMAN DRINKER: That could be modified to use only treatments that are supervised or prescribed by the doctor. That is a good point. I agree that ought to be changed. We will change it.

MR. BARON D. SNIDER, (Marine Ship Corporation, Sanalito, California): I am not speaking as a medical man, Doctor, but I am advised by some of the industrial doctors that one of the difficulties in treating eye flashes is that the men do not experience these symptoms until perhaps in the evening when they are far away from the medical center of the yards. The result is that they go to the general hospital or to a hospital which perhaps has not concentrated on the industrial arc flash and gives a relief which is not only temporary but actually irritates the condition itself, and by the time the workman comes into the shipyard the next morning his condition is aggravated and it takes twice as long for him to get over it. At Marine, our medical director has reported that that has happened quite frequently, because many of their workers do not live in quite proximity to the yard. I am wondering if any sort of action can be taken which would per-

to think of that. I cannot answer that right off the bat as to what we ought to do. I am frank to confess I think we ought to do something.

DR. RIKER: I would suggest there are all sorts of thing of that sort that are local problems, and the Maritime Commission cannot attempt to take a definite stand on them.

For instance, our fluoroscopic heads were removed from our yards a few days ago on account of some unfortunate accidents at Los Angeles. At any rate, I would say they consider the use of toxoid if it is enough of a problem.

At Portland, it is not. We have thought about it and discussed it, but have not felt that we as a prophylactic measure could even go into the idea of toxoid. So again I feel that is a local problem which the Maritime Commission would be looking for trouble on if they tried to generalize too widely.

CHAIRMAN DRINKER: I think it would be a local problem. If we wanted to give any such immunization it would be extraordinarily difficult to give it to all of the men in the yard. There would not be any way of enforcing it. It is not a problem such as the army or navy have where they are handling recruits. We can profit from their experience, but we cannot do it the way they are doing, and we could not get away with it.

MR. HAL C. FRAZIER, (Houston Shipbuilding Corporatio-

DR. SPENCER: A man from Abbott & Company came around to see me the other day, and he had a folder in which they claimed large reductions in the lost days from colds by the vaccines, but there is no way in the world of making that man take them. He is to take one a day for seven days, and then one twice a week for the rest of the winter, and the chances are they throw them away. It is very unsatisfactory, from my experience.

CHAIRMAN DRINKER: From a health standpoint, frankly, I do not think the Maritime Commission and the Navy would get away with it. I would hate to see us try it. I do not think we could get anywhere. Maybe we could.

DR. SPENCER: One of the questions that troubles us a great deal is tetanus, especially in the yards where they build concrete ships and they get deep punctured wounds all the time. The administration of the anti-tetanic serum is a dangerous procedure in some cases, especially where it has been repeated time after time. Moreover, it is a question of how long the administration lasts from a prophylactic dose. I wonder if Dr. Drinker would advise us of the possibility of dealing with anti-tetanic immunization, that is, an anti tetanus toxoid, and not a serum?

CHAIRMAN DRINKER: I do not see how we can evade that one. I would like to. We have not considered that. I think very possibly we should have. I would like to have a chance

venereal disease."

MR. CLARENCE MAYHEW, (Labor Management, Marine Ship, California): What about treatment of the common cold? I was upstairs in the safety engineers, and I wondered if this group had discussed the treatment of the common cold in the Maritime Commission yards. It seems to me on the West Coast, where we have so much rain and working outside, that that is one of the biggest problems. I was wondering if it had been brought up before this committee?

MR. RING: I will ask Dr. Drinker to answer that, because I was up at the civil engineers most of the time.

CHAIRMAN DRINKER: We did not discuss here the common cold at all, or any illness other than industrial. Frankly, if we can stay out of it, why, we would like to. The imp ance of it I will admit.

MR. MAYHEW: The workers would like to stay out of it, too.

CHAIRMAN DRINKER: So would all the rest of us, and our wives and our children. I have not seen a single industrial program yet that copes with the common cold in a way they are especially proud of. We cannot answer that. I mean, we have not anything especial to hold out for you.

MR. MAYHEW: Some of the aircraft factories prescribed some programs.

CHAIRMAN DRINKER: Not with any signal success.

as they are unable to meet the hours in which these clinics are held open, and the length of time it takes a man to leave the job and go to one of these treatment centers and come back is unreasonable.

CHAIRMAN DRINKER: How would it be if we communicated with the Public Health Service and suggested to them that in any yard where it appears there is a necessity for treatment centers to take some action along that line? I am sure the Public Health Service has been cooperating with us in such a way that they will probably do everything in their power to help out along that line. It will be definitely understood, then, that will be the procedure in any yard where they feel there is a definite indication that there is a need existing for a treatment center in the yard to ask the Public Health Service to do something about setting that up. I will do that as soon as we get word in from the various yards on that.

DR. RIEKE: My only suggestion on that is, you are not in a position to carry through in many localities on that program. I would simply indicate to them our willingness to cooperate with the Public Health programs. No one will argue that venereal disease needs control, but many local physicians in many of the areas in the country feel that shipyard workers are in a good position to take care of the treatment. In other words, the Maritime Commission is not in a position to say to any local area, 'You must do thus and so about

The federal government tells us we can get from seven to nine cases of gonorrhea for each case of syphilis. It is a matter of common knowledge to everybody that syphilis i a debilitating condition, and gonorrhea, although more briefly, is a disabling condition for a few days.

In many cases the Department of Health is urgently anxious to help us in all ways they can. If they can get a little help, they will come into the yards and establish treatment centers for a minimum of cost, and do a maximum amount of good, and I wonder if we could go on record of asking the Maritime Commission to give a little consideration to the local health departments to enable them to take this problem off our hands.

MR. RING: Am I correct or incorrect that the Public Health Service is conducting a nationwide campaign along that line, that they have set up clinics at various points for treatment at various places? It is my recollection that that is one of the reasons we skirted clear of the venereal disease proposition when we were drawing up these standards was that there had already been set afoot by Dr. Parren a pretty widespread campaign. Am I wrong in that?

DR. SPENCER: You are not wrong in that. There are innumerable treatment centers available to people who will go there and get treatment, but a great many of the shipyard workers commute long distances, and a great many of them t-

and that is the reason they are not in the "shall".

QUESTION: It is in the "shall" here.

CHAIRMAN DRINKER: Let us say we are starting from scratch, then.

MR. RING: Before the doctors leave, I want to ask a couple of questions. I always have to get right down on the beam on this thing.

Is it definitely understood there is a complete agreement here as far as the medical side is concerned on the minimum medical standards except those things the committee is going to handle, which I understand is pre-placement examinations and periodic check-ups, and the addition of shortage of physicians in the yards. If it isn't, let us hear it right now, and if we need more time, let us take more time to go in and examine anything we need. Let us not rush anything across. How about it now? I will count three, and if I do not hear a dissent by the time three comes down, I will take it for granted that it is understood.

DR. SPENCER: Gentlemen, in the South — I do not know anything about the rest of the country — there can be no question about the venereal diseases being the most important point in these yards. In Savannah one of the yards took blood tests on all of the employees, which were approximately 50 per cent white and 50 per cent colored, and found 18 per cent positive.

CHAIRMAN DRINKER: I will agree.

Mr. Roche asked that the safety engineers' group please remain here, as he wishes to continue his discussion in s room. We will leave the equipment we have here, and I hope very much that the doctors, if they want to stay for the safety engineers' meeting will do so. They will be very welcome. However, those of you fellows who would like to adjourn to one of the other rooms, so that we can continue this discussion informally, may do so.

QUESTION: Just before you do, my question was about the "shalls" and "musts", et cetera. That on the first page of Section D — not necessarily the remainder of it, but the first page — pertaining to the personnel of the department and ventilation standards — has that been approved as ye

CHAIRMAN DRINKER: That was not meant to be in the "shall" state. We put that out as a feeler to see your reaction. There is nothing uniform at all in the way ventilation is handled in the yards. If we could get a semblance of uniformity within some limits of common sense, we would like to do it. We think the ventilation ought to be under the safety department, but we did not feel like putting it in as a "must" or "shall". In some cases, we know good yards where they have good ventilation arrangements now, and they are not the same as we have suggested here. If they are good and working, we certainly do not intend to interfere,

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Anybody will get them. If the man is exposed and breathing it, he will get them. But they are very, very easy to draw off. But to say that it can be done with impunity without ventilation is absurd, because it cannot. The men will have trouble. They always have and always will, as long as they breathe the zinc oxide fumes.

DR. RIEKE: The point is brought up, what is a confined space in a Liberty boat? The question arises, is it in the hold or is it in the foredeck exclusively and shaft alley and double bottoms? Just how big is a confined space. That is a question. I do not ask you for an exact definition. I ask for a relatively close definition. That comes up all the time. Some man down in the hold says that it is too smoky in there for him. Now, is that your idea of a confined space, or what is it?

CHAIRMAN DRINKER: The betting is pretty good if you look at it and see that it is good and thick with smoke, that it is too smoky.

DR. RIEKE: Would that cause chronic disease, or would you care to say?

CHAIRMAN DRINKER: No, I would bet against it; if it was black iron I would bet against the chronic aspect.

DR. RIEKE: It might cause acute tracheobronchitis.

CHAIRMAN DRINKER: Definitely.

DR. RIEKE: Not enough to make him seriously ill.

two paragraphs below that, again, there are some definit figures giving capacities of the fan.

Finally, in next to the last paragraph, the final sentence, it says, "A minimum of 400 c.f.m. per welder shall be supplied to a given working space, such as a deep tank when general ventilation is used alone."

The question has been brought up as to what these welding fumes may do, and what the health hazard really is. There are plenty of instances now to show that welding, even on black iron in a confined space, is a bad practice and an unhealthful one. The reasons may be due to the metal fumes. They are probably due to a combination of the metal fumes, and the slight amount of toxic gas which we get. Accidents from welding and serious illness from welding on black iron are very rare, very rare indeed. By and large, welding in an open space is not unhealthful. This demonstration would have been a perfectly good example. It would not have been unhealthful in any way for the welder to weld here without any ventilation. You can see the same thing being done in shops practically all over the country with no bad results, but that is avery different matter from putting four or five welders in a deep tank with no ventilation. When you get on galvanized iron and are welding in double bottoms where galvanized piping is being installed, the men are breathing zinc oxide, and you can get the chills and fever, and you will.

painting be avoided. If this group will take a strong position on that, I think it will have a very definite effect. The easiest way to get out of this possible lead poisoning is to avoid the lead painting if something else can be done instead, and it would seem to me such a thing as Mr. Kaye has suggested is a very logical way out of it. We do not want to make analyses any more than you want to have them made. We would like to avoid this lead hazard. The easiest way to avoid it is not to use the lead until after the welding has been done.

Now, gentlemen, when Mr. Ross was discussing ventilation, it was asked if on this Section 2-D there were any "musts" or "shalls". There definitely are, and I can point out a few of them.

On Page 2-D on the local exhausts, we have specifications in the first paragraph suggesting what the fan's capacity should be. Designedly we do not name the fan. It does not make any difference what you use as long as it will do the work. We suggest there if you get a fan for a local exhaust that it be capable of drawing 200 c.f.m. through the flexible hose, and again a little further down, where general ventilation is discussed, under B, the second paragraph, that two-line paragraph, "It is desirable sometimes to supply a quantity of fresh air into the double bottom. Here a 2,000 c.f.m. unit may be used."

lead surfaces. It has been called to our attention that several cases have resulted from the use of hot rivets on holes that had been drilled, and the red lead had penetrated into the inside of the hole. Considerable study was made at the time that it was found, and it was found that there was no particular reason for using red lead. It is more of a custom than anything else, and it seems to me that one of the things that might develop from this meeting is the fact that a recommendation be made, possibly to the Maritime Commission Construction Section, that a lacquer which is equally good as a preservative for steel plate could be used in place of the red lead that is used supposedly as a preservative. While it does act as a preservative, I do not think it is essential.

MR. EGE: Dr. Drinker took that subject up with the doctors before the safety engineers came down, and he will speak a little more about that later.

I might point out that not only welding on lead painted surfaces, but any operation at all in which terrific heat is involved, will vaporize the lead and create just as serious a hazard as welding will.

CHAIRMAN DRINKER: There is nothing we welcome more than to have this organization take the position that early painting with read lead when something else could be used should be stopped, and to make a recommendation that the red lead

CHAIRMAN DRINKER: We will if you ask for them.

MR. EGE: As a matter of fact, the color chart is probably unnecessary, because you will see, if you come up later, the first standard has a stain on it which is just perceptible. That was made with one stroke of the gun. Consequently, if you went out with one of these instruments and just used one strike and got a stain on the paper, or one that was just barely perceptible, your conditions would be good. The difference between that one and the one on the end are easily remembered by anyone. So a whole series of these standards would not be necessary for you.

DR. REIKE: Is that standard in relation to some particular number, or just nuisance dust in general, or what?

MR. EGE: The fume was generated in a welding chamber. It was done on black iron with standard welding rods. We have tried three or four other rods and the stain on all of them is identical. We just go out in the yard and use it under the conditions that we find. That is the set-up that we have so far arrived at in offering a service to the Maritime Commission yards. We are set up to analyze for any fume dust, mist, gas or vapor which causes occupational diseases.

QUESTION: Mr. Ege, you have been mentioned here the possibility of lead fumes from welding on pre-painted red

the present methods of collection.

We have these instruments in both laboratories, that is, on each coast, and with these we would make the fume determinations.

I would like to show this equipment and show you how it works.

(Demonstration continued.).

MR. EGE: On the second test we get this fume collected on the paper. Now, we have found this instrument to have a very high collection efficiency for lead fumes, and it will work also, equally as well, for those of zinc or any other metal fumes you come in contact with in the shipbuilding industry. This is a device we have made, and if any of you care to look it over after the meeting, you may do so.

QUESTION: After we do make up one of those, how are we to know what we are looking at?

MR. EGE: As I said before, it is not intended that each of the safety engineers or each of the yards build this piece of equipment. In the first place, it requires the work of a chemist to determine just what the fume concentration is, and it would be impractical for the safety engineers of the plants to do that type of work. However, with this other sampler, you need only a stain on a piece of paper to determine just what your conditions are, and that is what we recommend.

QUESTION: Are you prepared to give us those various

were prepared by welding in a fume chamber. The air was kept in constant circulation and the concentrations of fume in the air were determined by standard methods, and then by taking samples with the gun at intervals we arrived at this standard, which is that of 30 milligrams of fume per cubic meter of air.

(A demonstration here followed.)

MR. EGE: That was about one stroke of the pump, and it is far in excess of anything you can see on these standards. After the meeting you can all come up and take a look at the pump that we have and see how it works, and decide among yourselves whether any of you would like to have such an instrument in your possession.

We have also developed one other instrument for sampling fumes and air. At present there are two methods of sampling lead fumes, zinc fumes and other metal oxide fumes. Both of these methods we felt were not good enough for our purposes, so we set out to develop a method which would be much simpler and much easier to handle in the field. It consists of a vacuum cleaner pump, an ordinary household piece of equipment, and a device for holding a piece of filter paper in a funnel-like apparatus. The air is simply drawn through the filter paper, and the fumes are collected on the paper.

We ran some extensive tests on the collection efficiency of this instrument for lead fumes. The efficiencies were extremely high and the instrument has many advantages over

utilizes a piece of filter paper. [illegible]
by us in about two or three days. It consists of a Sears Roebuck pump and a few other metal parts which are available in almost any machine shop. If any of you desire, you could have these pop guns or pump guns, whatever you want to call them, made up, and then you would have a very rapid method of determining just how bad your fume conditions are.

Our standards were made on the basis of three strokes of the pump gun, and I have here the standard colors which are formed on the paper. These are simply the stains of the welding fumes, and in practice all that is necessary is to just take three strokes of the gun, take the paper out, and compare it with the standard. You then have an analysis in just that much time. You know exactly what the concentration of fumes in the air is. Since we have also set up standards, it is very simple to decide on the spot whether your air conditions are below par or excellent or just what they are. The six men who are to go with Maritime Commission on this health program will each have such an instrument, and they could go through your shipyard with you and tell you in a fraction of a section just how good or bad your fume conditions are.

17 I would like to take a test over the welding arc itself and show you the stain that was formed. I imagine it would be very much darker than any of these I have. These standards

)k a laboratory set up on the East and West Coasts which can run through these analyses for you if you desire. I have brought along with me a mimeographed sheet which describes the analytical methods of the determination of lead in both urine and blood, and if there are any of you here who desire one of these, you can get it after the meeting.

In connection with welding, again, I would like simply to say something about the nature of welding fumes when bare steel or black iron is welded. The intense heat of the arc vaporizes the metals, and these oxidize in the air and are constituents of the fumes. There are also substances of an organic nature which constitute part of the fume. The color of this fume is a brownish chocolate color. I suppose all of you have seen it at some time or other.

Now, in connection with welding, there are some gases formed. Oxides of nitrogen and ozone are typical examples. The welders themselves, of course, notice the effect of these fumes on them, and there are two types of individuals, in general; those who fear the worst is going to happen when they breathe these welding fumes, and there is the other extreme, the individual who does not think that anything could possibly happen to him when he breathes the fumes of welding arcs, and this type of individual is also a problem.

In order to clear up the situation as to just how bad conditions are, we have designed a sampling instrument which

are also two respirators here which have not as yet the approval of the Bureau of Mines for lead mists, that is, those caused by spray painting. However, these approvals are lieved to be forthcoming soon. I will leave these respirator up here and you may come up after the meeting and look them over. Willson Products have supplied us with three respirators, two of which are designed for lead fumes, and these are the respirators that are to be used in controlling the proble of lead fumes. I will leave both of these up here and you can look at these after the meeting is over.

In both types of respirators here we have replaceable paper fillers, which are thrown away. You all realize the advantage of having such a system. It does not mean that you have to throw the complete respirator away. You need onl, throw away a small felt or paper filler, which is very inexpensive.

There are salesmen in attendance here from each of the companies. There is Mr. Charlton from the Willson Products, and Mr. Mehaffey of Mine Safety Appliances, and both of these gentlemen would be glad to discuss your respirator problems with you and tell you a little bit more about the respirators that are being shown here today.

Now, in connection with lead poisoning, it is also necessary to do some type of air analysis or urinalysis to establish whether or not there is a hazard present. We ha.

In the following cases, where more than one type of respirator is mentioned, the choice depends on the degree of the hazard which you have at hand.

I would like to say a few words about the lead hazard again. You have heard about this paint spray hazard, and about the fume hazard caused by welding lead painted surfaces

As you all probably know, it is a very difficult job to ventilate lead fumes down to the concentration which would not cause lead poisoning. The figure is .15 milligrams per tenth of a cubic meter of air. Now, ten milligrams per cubic foot of air is a concentration which none of you would believe to be especially bad. For instance, upstairs thismorning in the room the concentration of smoke in the air was probably about five milligrams, or possibly ten. To expect people to beware of a hazard when the concentration must be kept down to less than two-tenths of a millimeter is something that is almost impossible to ask, I suppose.

We are insisting that respirators be Bureau of Mines approved for lead fumes, and I have here samples which the two companies having approval have supplied me. These are MSA respirators. There are four types here.

This one has approval for metal fumes. This one has approval for metal fumes, and is designed to fit under a welder's hood. They have also two other respirators here, one of which is designed to fit the face of women, and there

57k

QUESTION: You have to be abrupt if you want to get it done.

MR. ROSS: That is what we want. I think we are bot after the same thing. The wording does not necessarily have to come up between us.

Gentlemen, our time is quite short. We have right here Mr. John Ege, who has some very interesting things to present to the group, and I will now turn the meeting over to him.

MR. JOHN F. EGE, Jr., (Ensign, Boston, Massachusetts): First of all I would like to talk a little bit on respirators. If you all have your health minimum standards you will find in Section B a discussion on respirators.

The most important point, you notice there, is that the respirators must be Bureau of Mines approved. Now, I hav for your perusal here pictures of all the respirators whioh are Bureau of Mines approved, and I will leave that up here on the desk, and if any of you are interested in it, you can come up after the meeting and look it over.

The advantages of having respirators which must meet with Bureau of Mines approval are obvious. The respirators then will be adequate, and will give adequate protection, and are well-designed.

You will notice under the general requirements that adequate protection is designed and it is recommended that the

16 respirators be comfortable.

have mentioned, there is another source -- that of using hot rivets on red leaded steel. Since it was shown that there was no particular reason for using red lead, why wouldn't it be possible for the Maritime Commission Construction Section to substitute a non-toxic paint?

MR. EGE: Dr. Drinker discussed that earlier, and will say a few more words about it later.

I might point out that not only welding on lead painted surfaces, but any operation involving intense heat will vaporize the lead and create just as serious a hazard.

CHAIRMAN DRINKER: We will if you ask for them.

MR. EGE: For rough work a standard chart is unnecessary. A just barely perceptible stain with one stroke of the pump indicates good conditions. Anything darker indicates poor conditions.

DR. REIHE: Does that standard respresent a particular number?

MR. EGE: The number of milligrams per cubic meter of air in a unit volume of air can be determined from this chart which is based upon thirty milligrams per cubic meter of air.

MR DAVE KAYE: In addition to the sources of lead poisoning which you

(A demonstration here followed)

You see here the color of the fume that has been collected, and the use this instrument, the pump-gun sampler is all you will use.

QUESTION: Are you prepared to give us the standard charts? we are looking for?

Mr. EGE: It is not intended that the safety engineers of the yards

( A demonstration here followed)

In connection with this work we have also developed another fume sampler. The instrument is inexpensive, simple, and easy to use. It consists of a vacuum cleaner pump, and a device for holding a sheet of filter paper so that air can be drawn through it. The fumes are thus collected on the paper. The collection efficiency, as determined by extensive tests, is extremely high, and with it we are prepared to make tests for all toxic welding fumes found in shipyards.

If the air is kept below this level, the gas concentrations are also well within the safe limits.

In order to judge conditions, we designed a sampling instrument which makes use of a sheet of filter paper. The instrument was made up in a few days. It consists of a Sears and Roebuck tire pump and a few other metal parts which are available in almost any machine shop. The instrument makes rapid determinations of fume conditions possible.

Our standards were made on the basis of three strokes of the pump, and I have here the standard colors which were formed on the paper. These are simply the stains of the welding fumes. In practice, three strokes are taken, and the resulting stain is compared with standard colors. You know what the concentrations are in less than a minute and can decide on the spot whether your conditions are above or below par. The six field men of the Maritime Commission will make these tests on request.

visor's report is an optional form?

CHAIRMAN ROCHE: No, it is not an optional form. That form must be used in one way or another. If you have a form use it, and if you have not a form, use that one, and by the time the regional consultant gets around, he will find whether it is any good or not.

MR. KOSSORIS: Well, if we are to draw off statistics from these forms, and we have 35 or 40 different forms being used, that will be very difficult.

CHAIRMAN ROCHE: Well, most of them are like that.

MR. RING: Can they all conform to that?

CHAIRMAN ROCHE: Most of them do conform to it.

MR. RING: Would it be much trouble to make the other forms exactly like this?

MR. FRAZIER: I would like to submit our forms for your consideration.

MR. RING: Let us get down to brass tacks on this thing. We are not going to be able to check this deal in any way at all if we are going to be vacillating about the forms that come in. Why don't you have a committee appointed, or somebody appointed to go out and bring in a standard form that you will all agree to, so that we won't have any question about it. We will say when we promulgate the standards that this is the form to be used for the supervisor's report, because if you change it around in one little way or another

you have in your yard.

MR. RING: That is the thought that I had on arising. If you put an over-all blanket catch-all provision in your contract, that a sub-contractor's employees should be covered then it is understood and agreed that the sub-contractor's employees will be bound by and will adhere to all of the safety rules, regulations and requirements in effect in the yard. Then, you have the whole thing taken care of, and your legal department can work that out very quickly.

MR. SMITH: I have taken this up on numerous occasions with our top management, and we cannot seem to reach an agreement on that, because we do have several sub-contractors in the yard, and they have been allowed to do these things, and it has worked a handicap, and it is one of our definite problems.

CHAIRMAN ROCHE: If you will write me a letter, I will be glad to give you that in the form of a recommendation.

All right, among the other forms, you will see several of them there, and the only reason I list them at all is so they would be included here. They are all very simple.

Now, various forms will be made available to shipyards on request. Please write in if you do not have them, and we will be glad to help you in the preparation of your own forms, or give you some information on existing forms.

MR. KOSSORIS: Did I understand you to say the super-

47hs

and I. G. Jones. I am going to ask you fellows to get together this evening and be prepared to report tomorrow. By the way, I would also like to add to that committee Max Kassoris.

(b) The following formula shall be used in determining accident frequency and severity rates for shipyards.

1. Accident frequency =

$$\frac{\text{Number Disabling Injuries X 1,000,000}}{\text{Total Man Hours Worked for Period Covered}}$$

2. A disabling injury shall be considered to be any injury which results in a man being unable to report for work on the next regular day or shift after the accident, or one which calls for a standard time charge being made regardless of whether time is actually lost. If time is lost due to the injury, subsequent to the initial return to work, then the injury shall be accounted as disabling.

4.14 Minutes central safety committee.

4.15 Minutes supervisors safety committee.

4.16 Inspection committee forms.

a. Minutes of meetings should show date and time of meeting, names of those present, action on unfinished business brief description of new business discussed and action taken or ordered by the committee on each item. The discussion should always include the predominating accident hazards of the yard and the means suggested to control them.

first of all it makes it difficult, so far as analyses of them are concerned, and secondly, it leads to difficulty, so far as interpretations are concerned.

Now, we have the opportunity with everybody gathered here today, to do something that I do not believe any other industry with as broad a scope as this has ever had a chance to do, namely, get down to bed rock, and say this goes for all of us. If that is not good enough, and we do not want to impose anything on you that you do not want, but if that is not good enough, tell us what is good enough, and let us understand that we will use that form, and that only.

I do not see any other way that we can get going on thisthing. We are here to standardize things, and you cannot standardize them by letting a little slide off to the right, and a little slide off to the left, because the first thing you know, you are all out in the middle again.

CHAIRMAN ROCHE: Let us have such a committee appointed on that form, then.

MR. WHELAN: I take it, then, that this supervisors form is not to go to the Commission?

CHAIRMAN ROCHE: Yes, it comes to the Maritime Commission definitely.

Now, we will appoint a committee to make a study of that form and report on it tomorrow morning. I am going to appoint on that committee Carter Kendall, as chairman, Dave Lester,

work, he is not a lost case.

I suggest that we move on, as it is getting rather late.

5. Safety committees.

5.1 The safety director, in cooperation with the shipyard general manager, shall cause to be formed and put into effective operation at least the following safety committees.

5.11 Central safety committee

a. Membership: management representative (chairman), safety director, (secretary) superintendents, foremen, medical department representative, quartermen or leadermen, and one employee.

Now on this safety committee, the safety director as such should be a secretary, and he should not delegate that responsibility.

b. Membership of all but management representative medical department representative and safety director shall be (may be) rotated -- terms of 2 months each but rotation to be arranged so only 1/2 of committee changes each month.

Now, there is considerable leeway there, and if you want to keep him on for three months that is all right, but do not make it a permanent committee.

c. Meetings - Shall be monthly or more often as necessary.

In the case of most of these central committees they meet now and again, and their average is about 12 or 15 times a

b. Various inspection committee forms will be made available to shipyards on request.

4.17 These forms, and any others pertaining to industrial safety or health shall be filed and made available to authorized representatives of the U. S. Navy-Maritime Commission upon request.

MR. SNIDER: I would like to go back to that part referring to a disabling injury which results in a man being unable to report for work on the next regular day or shift after the accident, or one which calls for a standard time charge being made, regardless of whether time is actually lost. What does "unable to report for work" mean? Our insurance carriers do not permit us to bring a man back to work if he has a patch over his eye.

CHAIRMAN ROCHE: The answer is if he is there ready for work, that it is not a disabling injury.

MR. SNIDER: Who is to decide that?

CHAIRMAN ROCHE: You in your yard. If the man is there, it is up to your medical officer to decide that. We cannot make any decisions of a medical nature, because we have to leave that up to the doctor, and that is a condition that has to be corrected locally, if you do not agree with me.

There is a definition on the form, paragraph 1, that is a standard, and it is generally accepted as that definition. It does not leave much leeway; if a man is there ready to do

e. Secretary - The safety director shall act as secretary, prepare an agenda, take minutes, prepare a report of committee meeting and distribute copies of reports to members. He shall follow through with other committees, the suggestions and recommendations of the central safety committee.

MR. WHITE: I do not believe I understand paragraph "a". Does that mean one superintendent, one foreman, or does it mean all of the foremen?

CHAIRMAN ROCHE: No, just the representatives.

MR. WHITE: The representatives from each craft?

CHAIRMAN ROCHE: No, just representatives. You could not possibly get them from each craft. I think in one yard, we would have 300 foremen in there, but representatives we would say of two or three. We will leave that up to the individual yard for their best decision on it.

MR. PACKARD: I wonder if we could get this over to the Navy on this safety committee, or the safety engineers using a particular type of safety equipment. I know the Navy, generally speaking, is very good that way, and in certain yar certain individuals who are reserve officers and who know nothing about safety, diotate the terms of what tyoe of equip ment we are to purchase, and it makes it very embarrassing and difficult.

year, but not at regular intervals, and it is up to the safety director to see that they have to meet at least once a month, or 12 times a year.

MR. CONLON: This setup now countermands the old Maritime Commission instructions in regard to an executive safety committee, and a general safety committee?

MR. RING: Anything in conflict with this that has gone on in the past, will be disregarded.

CHAIRMAN ROCHE: Now, if you want to have the Maritime man on there, you can, of course. These are minimums. If you want the Maritime on there, put him on.

d. Duties - This is the policy forming committee for safety work. They review the monthly report as submitted to the U. S. Navy-Maritime Commission and other records to determine the course of safety work for coming period. They decide such matters as type of safety equipment to be used and how it shall be made available to men, types of safety training to be used, whether accident prevention plan is being adhered to, inter-plant contest awards, etc. Some such committees review the investigation on fatal or serious accidents, and make recommendations. All committee members are expected to make practical suggestions to improve shipyard safety. They also review reports of other committees to make certain suggestions and recommendations are properly followed through.

AFTER RECESS

(The meeting was resumed, pursuant to recess, at 5:00 o'clock p. m.)

CHAIRMAN ROCHE: I suggest that those safety men in the rear move up to the front and they will be able to hear much better.

When we finished upstairs, we were just starting Page 6, "Supervisors' Safety Committee." That is on Page 6, and it is 5.12.

MR. DAVID KAYE: Before you start with that, I would like to refer to 5.11, in connection with membership on the Central Safety Committee. I am not trying to plug any particular organization, but why couldn't there be a representative of labor and a representative of management specifically representing labor and management committees?

CHAIRMAN ROCHE: That is a very good point. The question was, why couldn't there be a representative of management and a representative of labor on the Central Safety Committee, and especially designated to represent the labor-management committee. The answer to that is that there may be. These are just minimum requirements, and only minimum requirements. You can put anybody else on that committee that you want to, including the chief of police of the nearest town, if you think it will do you any good.

MR. KAYE: Then while this is a minimum requirement, why couldn't you say that it is so recommended?

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[illegible] that is true probably in some cases, but you will find in your medical standards, that the types of approved equipment are specified, and there will be little or no leeway there. It will contain a decision practically of what companies you will have to buy the equipment from.

MR. PACKARD: Can we get these reports that came down from the Navy to the various yards?

CHAIRMAN ROCHE: It probably will, and the Navy, of course, has its own plan on it.

Would you like to comment on that question?

COMMANDER CARLSON: I understand they are preparing a list now, and that can be referred to as a Bible. However, I think we can work that out all right if you will just write me in regard to your individual case.

CHAIRMAN ROCHE: Thank you, Commander. It has been suggested that we all now go down to see Dr. Drinker's demonstration on welding and ventilation, and after he has finished we shall remain there and finish our deliberations down there, because we have got to be out of this room by five o'clock anyway, and I think we may be a little late.

(Whereupon, an adjournment was taken at 3:45 o'clock p.m. to 5:00 o'clock p. m.)

department has an unusually poor record then the responsible supervisory staff - superintendent, foremen, quartermen or leadermen should be retained on the committee until their record is at least equal to the shipyard average.

b. Meetings - Shall be monthly or semi-monthly or more frequently, as necessary.

c. Duties - The primary purpose of this committee is the stimulation and maintenance of interest and the education of its members in accident prevention. The shipyard accident record shall be reviewed, the predominant types of accidents and the predominant causes of these accidents shall be discussed. Suggestions and recommendations to improve the records are solicited from each member. At least one timely subject must be discussed at each meeting; i.e such as eye injuries and their prevention, electric shocks, hand tool accidents, et ceters. Methods of avoiding accident due to these operations should be presented by the committee members.

d. The committee shall review reports of all fatal and seriour accidents and suggest preventive action. It shall review reports of inspection committees and check on the quality of the suggested corrective action for unsafe conditions or practices reported.

MR. KENDALL: Which is the senior committee?

CHAIRMAN ROCHE: The Central Committee is the senior

CHAIRMAN ROCHE: Because some of the yards do not have labor-management committees. We hope that all of them will have. We can include, if you like, where there are labor-management committees, if it is agreeable that we have such representation. I see some head shaking. I would say this: This being the minimum requirements, if you want to put them on, go ahead, and it is a good idea, in my opinion, and if you have not got one or don't want one, why, leave them off.

MR. FRAZIER: I would say that you leave it as it is, and put them on if you want them on.

CHAIRMAN ROCHE: All right, that will be the decision. Is that all right with you, Mr. Kaye?

MR. KAYE: All right.

CHAIRMAN ROCHE: He will take it for an answer, but he is not satisfied.

Now, we will continue with 5.12, the "Supervisors' Safety Committee."

a. Membership - Management representative, safety director, medical department representative, superintendents, foremen, quartermen, and leadermen. This is a rotating committee; rotation should be arranged so all of the supervisory staff serve in their respective periods, i.e., superintendents change each four months, foremen each two months, quartermen and leadermen each month. In no case should an entire group change at one time. Where a department or unit of a

groups of accidents. Individual cases should be taken care of by that time. The question that in Paragraph (c) after this sentence, the second sentence, "The shipyard accident record shall be reviewed, the predominant types of accidents and the predominant causes of these accidents shall be discussed," there be added "and appropriate action shall be taken." Do you agree that that should be in or leave it out, that is, leave it the way it is?

MR. KENDALL: Well, if the Central Committee is the policy-forming body, they should take the action, rather than the advisory.

CHAIRMAN ROCHE: It is just a double check, because they are giving a more thorough review than the Central Committee can give, because of the close contact.

e. The committee shall act on the suggestions and recommendations of the central committee.

Outside speakers such as safety engineers, insurance men, state department, labormen or men from other shipyards, may be used from time to time to stimulate interest of committee members in accident prevention work. Sound film strips, motion pictures or other similar media on safety subjects can and should be used if available and practicable.

f. Secretary - Same as for central safety committee.

Now, we come to the inspection committees, if we are through there.

committee.

MR. KENDALL: And then you would have the senior committee passing on the Central Committee?

CHAIRMAN ROCHE: No, but they shall act on recommendations. I reversed that, or I turned it around. In other words, they will do as they are told by the Central Safety Committee.

MR. KENDALL: In other words, they shall carry out the suggestions?

CHAIRMAN ROCHE: Yes, they shall carry out the suggestions and recommendations.

MR. KENDALL: That is better. It is a little bit loose there.

MR. KAYE: Under Section C, you say,"The shipyard accident record shall be reviewed, the predominant types of accidents and the predominant causes of these accidents shall be discussed." Why wouldn't it be permissible to add "andappropriatesteps taken to eliminate them"? The suggestions and recommendations sometimes are not actionable, but if you put in specifically that an appropriate action shall be taken for their elimination, you have got something pretty specific to work on.

CHAIRMAN ROCHE: We are in hopes by this time the conditions that have caused the accidents have already been taken care of, except as a general overall spread. That is, on

8k MR. GRAHAM: I would say an executive committee which represents management, production and Maritime Commission.

CHAIRMAN ROCHE: They shall make the decision?

MR. GRAHAM: That is right.

CHAIRMAN ROCHE: There is only one trouble with that, and that is that there is too much time wasted in getting a decision from another committee, as this may be something that needs immediate action.

MR. GRAHAM: Well, you covered immediate action in the next clause in that paragraph.

CHAIRMAN ROCHE: You do not believe that they can or that they should go to the superintendent?

MR. GRAHAM: No, sir, I do not.

CHAIRMAN ROCHE: You would rather wait for a meeting of the committee?

MR. GRAHAM: The superintendent might feel that he is in charge, and he might decide to disregard the recommendation entirely, and then you are lost.

CHAIRMAN ROCHE: I see what you mean. What do you think of that point? The point is objected to to this sentence: Where a condition is discovered on which there is a disagreement, the superintendent shall make the necessary decision, and it is suggested that the decision be referred to the Central Safety Committee, which will take some time.

MR. GRAHAM: I do not agree that it will take some time,

a. Number - One committee for each department and each hull.

b. Inspection - Weekly or more often as necessary.

c. Membership - At least two employees and a supervisory employee of each job being inspected. The safety director or staff safety engineer may and should also accompany the committee.

d. Duties - to inspect their department or hull for the purpose of discovering and having corrected unsafe acts and unsafe conditions likely to cause accidents. On each section of a job they should be accompanied by a responsible supervisory employee. They are observers only - the foreman, quarterman or leaderman shall do all corrective work. Where a condition is discovered on which there is disagreement the superintendent shall make the necessary decision. Hazards immediately dangerous to health, life or limb should be corrected by the accompanying supervisor at once.

By that I mean that the inspection committee is not to go around and correct the men themselves. There is nothing that irritates a foreman or a superviser more than to have some inspector come around and give orders to his men.

MR. GRAHAM: I do not agree with that clause where a condition is discovered on which there is a disagreement where the superintendent shall make the necessary decision.

CHAIRMAN ROCHE: Will you propose a substitution?

How many of you think it should be changed? (A few.)

It looks like it will have to stay as it is.

Now, again, let me point out that that is a minimum requirement, and if you want to take that to your central committee in your yard, that is perfectly all right to go ahead and do it. I mean, these are what are known as rubber standards. The only rubber standards we have in the country. You can stretch it, as long as you stretch it in the right direction.

e. The committee shall submit written reports to the safety director and indicate whether accident producing conditions or practices have been corrected. These reports sh be referred to the supervisory safety committee by the safety director. If necessary because of dangerous conditions, he may refer them at once to the general manager.

MR. FRAZIER: You skipped over the underlined portion in paragraph "d".

CHAIRMAN ROCHE: No, I read that in a very loud voice.

MR. FRAZIER: Then I would suggest that you change the "should" to "shall".

CHAIRMAN ROCHE: Thank you, sir. I think everybody will agree to that.

a. Staging inspectors, electrical inspectors, crane inspectors, boiler inspectors, et cetera.

b. Membership - Specially qualified individuals or teams

3k because the Central Committee must be subject to the immediate call, and I mean by that, the same day.

CHAIRMAN ROCHE: Then in some of the yards they would be meeting three times a day.

MR. DESJARDINES: The Chairman of the Central Committee would have the last say.

CHAIRMAN ROCHE: What is your pleasure on that? Originally, it read the yard manager would, which would have taken in Mr. Desjardines' point as the Chairman of the Safety Committee, but the yard manager again is a busy man and the superintendent of a particular job can and frequently will make the decision.

Now, if it is disagreed, it can still be referred to a central committee and should be.

MR. GRAHAM: After he disagrees?

CHAIRMAN ROCHE: If he makes a decision, and there is still a disagreement between the committee members, then, of course, it should be referred to the central committee.

MR. GRAHAM: You know there is a conflict between the recommendations of the safety department and the operations department. If the operations department head wanted to make a decision, the safety department is out on a limb.

CHAIRMAN ROCHE: I think you have got something there.

Well, what is your pleasure on that? How many of you believe that you should leave it as it is? (Quite a few.)

duties of your safety inspectors and putting them on committees. I wish we would consider that, and probably in many of these cases here, a safety inspector, a qualified safety inspector, can act as this committee. He can take up the safety steward with him, if he wants to be a committee, but do not leave the safety inspector out of all these primary inspection duties.

CHAIRMAN ROCHE: That is a very good point, and you will notice there the membership it says "specially qualified individuals or teams permanently assigned to work," and that practically makes it the safety inspectors.

Now, there are very few safety men who are qualified crane inspectors. In insurance companies you get specialists, for example, the company that I was with. We had elevator men, and they did nothing but inspect elevators. We had some boiler men and they did nothing but inspect boilers, and we had unfired pressure vessels in some cases before we had a large number of them, and these men inspected nothing but that.

You have different specialists, and that is exactly what you are doing in this case. I think there are very few of you here who would like to go out and make a complete crane inspection, isn't that right? Some of us are qualified, I know, but very few, and you do not very often run into one. While you might be able to make a complete crane inspection,

permanently assigned to work.

c. Duties

1. Staging Inspectors - Daily or continuous inspections of all stages shall be made on each hull - or other locations where stages are used. Report shall be made of all defects to the rigger foreman for immediate correction. Copy of the daily report shall be submitted to the safety director.

Again, that is flexible. In some yards the staging inspection is done by the stage rigger foremen, and they are authorized and qualified to make immediate repairs. The only thing we have been missing, however, are reports which will indicate a trend that we did get a lot of staging effects that we want to know about, so that with that we can take appropriate action to see that they do not occur again, and cut down on any unnecessary stage repair work.

2. Crane Inspectors - Weekly inspections shall be made of all cranes and rigging. Reports shall be submitted to proper department head for correction of unsafe conditions or practices. Copies of reports on defects shall be made to the safety director.

3. Other Inspectors - As above and at indicated frequency.

MR. JOHNSON, (Portland, Oregon): The one objection I make is to having so many of these committees and duties that it seems to me that you are taking all of the authority and

4k all of the recommendations that are made?

CHAIRMAN ROCHE: Copies will be given to him as is indicated under the duties of the safety engineer for keeping the general manager informed of the progress of safety in the yard.

MR. GREENLEE: Is it just a question of keeping him informed, or will he be given the privilege of saying, "Yes," or,"No"?

CHAIRMAN ROCHE: Well, not only be given, but he will probably take it, and he usually does.

MR. GREENLEE: Well, it is not here, and I thought it ought to be here.

CHAIRMAN ROCHE: So, in other words, we have purposely avoided saying that the general manager in the yard must do this and must do that, because there is no use bumping your head against a stone wall. We are leaving it up to him to appoint a management representative on these committees, and it may be himself, and we are leaving it up to the safety engineers to keep him properly informed of conditions in the yard with respect to safety, health, hygiene, et cetera, and that is where they all come under.

MR. GREENLEE: Has anyone figured how much of a staff with all of its committees, et cetera, that a safety engineer is going to have?

CHAIRMAN ROCHE: That has been covered. I do not know

you certainly would not be an inspector of boilers, first, because you would not be permitted to, and secondly, because you are not qualified to do that particular type of work.

MR. CONLON: I was going to say the same thing that this gentleman back here said. I was going to ask who is to appoint these men? Are they to be appointed by the safety department, or by the various superintendents?

CHAIRMAN ROCHE: That is a very good point. They should be appointed on consultation with the proper department heads by the safety engineer, and will very properly become a part of his department as they do in some yards.

MR. CONLON: It looks like they are going to overlap.

CHAIRMAN ROCHE: Well, I realize that the crane inspectors like to maintain control of the cranes in their yards, and the riggermen like to take care of their own men, and that is all right. The main thing is to get the inspection done, and the conditions corrected.

MR. GREENLEE: Under the membership of the central safety committee, the management has a representative, and he is the chairman. I judge from some of the discussions following that that probably the general manager is to be that man, is that right?

CHAIRMAN ROCHE: Not necessarily. However, he may be.

MR. GREENLEE: Well, if he is not, just what is the mode of keeping him informed, or of at least securing his O.K. on

5k MR. GRAHAM: We do not happen to have any boilers inspected by anybody, except the Maritime.

CHAIRMAN ROCHE: Well, what about the rigging?

MR. GRAHAM: That is checked by the carpenters.

CHAIRMAN ROCHE: Then the carpenters do the inspection.

MR. GRAHAM: Well, we inspect it and they correct it.

CHAIRMAN ROCHE: It is perfectly all right if you want to take three or four of your men and make staging inspectors out of them.

MR. GRAHAM: Well, that is part of their duties.

CHAIRMAN ROCHE: Do you have them all on hulls?

MR. GRAHAM: All of the hulls are covered.

CHAIRMAN ROCHE: You do not have any stagings in the shop?

MR. GRAHAM: The men in the shop also work on the hulls, and they have to be able to work anywhere.

CHAIRMAN ROCHE: The point I make is this: That you do not need to call them safety engineers. You can have men out of the riggers, and/or men out of the stage director, or men out of any of the shops, or housekeeping committees.

MR. GRAHAM: Don't you think the Central Committee and the supervisors committee and the labor-management committee is sufficient?

CHAIRMAN ROCHE: No, I do not, and neither does this committee that met in Chicago. You need the additional men

.5k whether you were upstairs there a little while ago when we covered that matter, and in fact, we have even increased it considerably.

MR. GREENLEE: It looks to me that with a force of twenty thousand men, we are going to have at our yard probably two or three hundred instead of the relatively few that you had up at the other meeting.

CHAIRMAN ROCHE: We have cut the minimum to three thousand, and for an assistant safety director, and for each thousand thereafter, there should be one additional.

MR. GREENLEE: That does not cover all of these committeemen?

CHAIRMAN ROCHE: Those are entirely separate.

MR. GREENLEE: The safety engineer appointed in consultation with the heads of the department?

CHAIRMAN ROCHE: Those are separate.

MR. GRAHAM: You have so many committees you have already pointed out;the safety director only has twenty-four hours to work in. He will spend an entire day to just keep up with the committees. I think you have too many committees.

CHAIRMAN ROCHE: Well, how do you get your crane inspected?

MR. GRAHAM: By the master mechanic.

CHAIRMAN ROCHE: Then he is your crane committee.

How do you get your boilers inspected?

and the toughest cases that we ever had, the fellows who would not wear goggles, the men who would not use guards with which to protect themselves, were Christians after a little service on a safety committee.

Now, you can lump all of these, and call them housekeeping committees, if you want to. These are minimum requirements, but you are certainly going to need inspection of cranes, boilers, and continuous inspection of staging. There is not a yard I visited that did not have staging inspectors, not one, and most of them were staging men, or staging directors.

Are there any more comments on that particular section?

MR. WHITE: In looking over this, it seems like a duplication here on the central committee and the supervisory committee of your leaderman, quarterman, foreman, et cetera. On the central committee, or the policy committee, should be the management, the safety director, the medical representative, and the superintendent that covers every one of your divisions or crafts in your yard. They are the people who would naturally form the policies of the safety, and when you came to your supervisory committees with your safety directors, your foremen, and your superintendents, who are the supervisors of that who under them come the leaderman and quarterman, who they direct, and then comes the safety general committee, which is a committee from every craft in

who are making inspections of their own jobs. For example, one safety engineer on the hull cannot keep the hull in good condition, not even on a Victory ship, and you are making bigger ships than that in some of these yards. I have seen that so many times where you get a condition corrected in one spot and you walk down the line and correct some place else, and by the time you return there are three or four other places for you to correct. So, he does need some help. All of this is educational.

I think if you put a man on an inspection committee, you will make a convert of him. If you do not believe that, try it with some of your tough nuts sometimes. These are educational committees. You get some good out of them, it is true, but get conditions and practices discovered and corrected, but the biggest thing you are doing is selling them on safety. If they report a man for not wearing a hard hat, or not wearing goggles, or not using the proper ventilating equipment, or putting up effective stagings, or what have you, they are not going to do that themselves, at least not for a week or so, and we discovered service on committees really means converting these fellows to your way of thinking, to helping you with your safety program.

On any program that I have ever conducted, or operated, it has been my endeavor to get as many men at one time or another, certainly not all at once, serving on a committee,

20k should be on there.

CHAIRMAN ROCHE: That is all right, to put the four superintendents on there, or whatever it is.

MR. WHITE: If you pick a quarterman out of the air who happens to be in the boiler shop, and who is not interest in hull construction, or anything else, he is of little value to us in the general advisory end of it.

CHAIRMAN ROCHE: However, you do get valuable representation for that committee, whether he has the overall picture or not. At least, his group, the leaderman, is being represented on that committee. You do not expect that each and every individual on here is going to have the same intense interes' in safety problems that you are going to have, but at least, you are getting the viewpoints of the representative leadermen on this question of policy that will be raised for this committee. And they are the men in general who will have to enforce these rules, and they should have representation on this committee.

Now, getting down to your supervisors' committee, that, of course, is a supervisors' committee, and again the size must be left up to the individual plant because of the differences in the names of individuals and the differences in numbers and the differences in responsibility of leadermen in one yard and another yard.

MR. GRAHAM: Is it proposed that these special inspectors

the yard who meets, and they are all polled, and all of their suggestions are brought to your central committee who acts upon them, or the supervisory committee who acts on them, and then in our case with thirty safety inspectors, it does not seem like they have a thing to do.

CHAIRMAN ROCHE: Who does not have anything to do, the safety director?

MR. WHITE: No, because everything is done for him.

CHAIRMAN ROCHE: Well, a good safety engineer works that way. Let me say this: Perhaps we should specify the size of the central committee. That is a small committee, but with our present system of labor management operation, we should have representation on any policy-forming groups affecting the welfare and the activities of the men in the yard, and that is what I say a representation from your various supervisory groups, or supervisors, and your labor, and one from the employees. I would be satisfied, if you would, they would have two superintendents, one foreman, one medical department representative, one quarterman, one leaderman and one employee, plus your management representative, your safety director, and your secretary, which is plent for a policy-forming group.

MR. WHITE: The only trouble about quartermen and leadermen, is if you take them out of the boiler shop, they are not interested in anything else. I think the four superintendents

CHAIRMAN ROCHE: That is all right. I would suggest you make it the "Proper Foreman," because there is a difference there. Or you can make it "Responsible Foreman." We will change that from "Rigging Foreman" to "Responsible Foreman." There is a difference in authority.

a. Committees in addition to those specified in these standards, may be formed and operated if desired.

Somebody a few moments ago said that that is a lot of committees to have, but you should see the number of committees that they have in some yards. Every craft has a committee on each shift. I have seen as many as thirty in some yards. It seems to me all they do is have meetings, but if they help your safety program that is fine. There is no question but a certain amount of it does help some committees.

b. Representatives on all committees, when of a supervisory status, should be appointed by the shipyard general manager and held responsible by him for active and interested participation in the work of the committee. Employee representation may be secured in the same manner, or by appointment of employee committees, union shop stewards or by election by union members or by any other feasible means.

c. The services of production employees having related duties may be taken advantage of on inspection committees. Stage erecters or repair men may serve as permanent and con-

21k be paid as special inspectors, or are they employees from the various departments?

CHAIRMAN ROCHE: It depends on the yard. In some yards, the safety department has the department, and in other yards they work for the particular department in which they are inspecting. That is left up to the yard.

MR. GRAHAM: Are their duties or responsibilities confined to that of inspecting?

CHAIRMAN ROCHE: Not necessarily, as it may be a part-time job. A weekly inspection of a crane, where there are only two cranes in a yard, is not going to take a week. In other words, they are inspectors so long as they are working on inspection. After that, they go back to staging or rigging, or whatever they are doing.

MR. GRAHAM: In some yards they are on the payroll of something else?

CHAIRMAN ROCHE: Yes, that is true. They have taken some of the stage riggers who are qualified men to make stage inspectors, and that is all they do all the time.

MR. WHELAN: In Paragraph 1 under "Duties", on Page 7, Staging Inspectors, you state here that staging inspectors

1 shall report all defects to the rigger foreman for immediate correction. However, in some yards the rigger foreman has nothing whatever to do with staging. Why not make it "Staging Foreman"?

is a charge, I will let you know how much it is.

The time for the safety training of an employee to start is at the inception of his employment. After a physical examination, which should be made to make certain that the employee is physically capable of performing safely the work he is requesting, the man shall have explained to him the safety policy of the company by a representative of the safety department. This may be done individually, in general groups or in craft groups and the instruction may be supplemented by printed instructions in the form of rule books or instruction cards.

MR. JACK WOLFF: May I say there that I have listened in on several instruction programs that were given by a member of the safety department, and in principle, they were doing the right thing, but it was not being done in the right way. It was not very effective. For example, a great many national statistics were thrown at the new people coming in, and reference was made that the hold could be filled with decapitated bodies, and cut off arms and hands, in the course of a year, and I questioned whether it did very much good. Consequently, I would suggest that every safety engineer go farther than just to assume, because a safety man is giving the instructions to the new man, that it is being done in a way that will be effective with that new man.

CHAIRMAN ROCHE: That is a good point, and that brings

tinuous staging inspectors, a man or men from the ventilation crew may be utilized for checking on ventilation practices. The reports of state or insurance inspectors will be considered adequate on boilers, air compressors and receivers, or on other pressure vessels.

In the Century Room you will find an exhibit of materials on the board from the National Safety Council. Those of you who are publishing house organs can get from the National Safety Council a considerable amount of material without cost that can be used in your magazines. They include mats, certain posters which are available that are appropriate. That one you see on the wall, while not suitable for your magazine, if any of you want copies of that, let me have your names and addresses, and I will see that you get as many as you want, without charge.

Also, those of you who are operating in a country where there is a snow condition in the wintertime, we will give you all of the posters you need on driving safely with snow on the ground. Those of you operating car pools, where there is snow on the ground, will be given a sufficient number of booklets, four-page leaflets, for your employees, rules for auto pools in the winter. That is not the exact title, but it is illustrated on the board, plus a lot of other things.

If you want anything, let me know. There isn't any charge for any of them, and if you select some on which there

cards available. One of the best I have seen was developed by Frank Johnson in Oregon, utilizing a lot of cartons, but specific craft construction. Instead of a lot of hurrah in the books that lead the fellows to throw the books away, he has really given them something.

6.4 All employees shall be instructed in their specific duties by their immediate supervisor and they shall be made familiar with the hazards of the job and instructed carefully, in how to avoid them. It shall further be the duty of the supervisor to constantly check all employees so unsafe working practices may be corrected before accidents occur.

There is certainly nothing new about that. That should have been done for years. If you talk to the average supervisor, he will tell you that he is doing that, and again that is where Jack Wolff's program comes in, and the JIT training program comes in. That is the job instruction training. So, training methods in industry generally, as well as in shipyards, have improved considerably over the past year.

6.5 Safety instruction shall be correlated with all apprentice and craft training schools. Safety instruction in such schools or training courses shall include, an explanation and demonstration of the need for the safety equipment or safe practices specified and the strict enforcement of all safety requirements in the classes. The instructors

k up a beautiful opportunity to tell you this: I would like to tell you of Jack Wolff's work which he spoke about this morning. It will be his job to assist in developing such preliminary inspection instructions for your men. It will be his job to correlate all safety training and to elaborate on any phase of it with you fellows. That does not mean that it is going to be compulsory, of course. His program will be so prepared so that it will fit your particular yard, and it will be made at your request.

I heard that talk on the decapitated arms and legs, and it is not a very good one, and certainly a welder is not very much interested in national statistics. What he needs is more specific instructions.

6.2 Employees shall have in their possession, and be instructed in the proper use of, all necessary personal protective equipment before being started on any job.

6.3 General safety rule books, craft safety rule books or safety instruction cards may and should be supplied employees. Such books should be concise but complete enough to furnish written record of all important safety rules. No rule shall be included which will not be strictly enforced. The assistance of U. S. Navy-Maritime Commission safety engineers will be given in the preparation of such rule books if desired.

There are several very good sets of books and instruction

MR. DESJARDINS: We have our own artist, and we make it a practice to have our Navy yards display posters of some specific action.

CHAIRMAN ROCHE: That is exactly what we are going to do in this set-up.

MR. KENDALL: Will you ask the group how many are using jumbo posters? I am referring to the billboard size.

CHAIRMAN ROCHE: There are about a dozen using them. We are going to try to produce some posters worth while, but we have not had any good ones lately. We have inspired the men to boredom.

6.7 Where shipyard house organs (magazines or newspapers) are established, (it is recommended that they be established in all yards having 5,000 or more employees,) the safety director shall arrange to have a reasonable proportion of the space devoted to safety (articles, items and cartoon cuts relating to safety will be made available by U. S. Navy-Maritime Commission safety engineers.)

Now, please do not ask us for any until after the first of the year. The publicity division is working on them now, and in the meantime we will have this stuff that I told you about upstairs.

6.8 Sound film strips and motion pictures on safety subjects should be used where practicable. Public address [illegible] may be used for safety messages to

shall, by their own example, impress upon the learners the importance of the safety requirements.

6.6 Safety bulletin boards shall be located at each hull and shop, and at such other locations where they may be desirable, on which safety posters, letters or bulletins from the shipyard management or safety department, and other safety material may be posted.

6.61 The bulletin boards shall be located where the majority of the employees at a particular location will see them.

6.62 The bulletin boards shall be well constructed, have a locked glass cover and shall be lighted at night.

6.63 Safety posters and other material on bulletin boards shall be changed at least semi-monthly or more often. (Posters will be made available by the U.S. Navy-Maritime Commission for the use of shipyards. However, posters may be selected by the shipyard safety department from any source.)

We are going to try to get you specific posters. Is there any objection to that "semi-monthly" change? Personally, I would leave mine up much less than that. I would say that you should change them more often, but with our present set-up, it is practically impossible to do anything better. There is a lack of applicable posters, and there are not enough good ones to go around, and we hope to supply those.

CHAIRMAN ROCHE: We hope so. It is a tough thing to have your men buying shoes from Ginsburg, and Klein, and Mulcahey, and then come in with every possible kind of equipment at a variety of prices.

MR. KENDALL: Along the same lines, we have found that unless you can sell safety shoes on a payroll deduction basis you do not sell the shoes. At least, you do not sell very many of them. What can be done along that line?

CHAIRMAN ROCHE: That is a law that would require an Act of Congress to change. I sympathize with you, but I do not know what you can do about that.

MR. FRAZIER: I beg to differ with you. In our shipyards we sell all we can get, and the men come in and pay cash for them, and there is no payroll deduction. The cash is put on the barrel head, and they get the shoes, and I have sold as many as a thousand dollars' worth a day.

CHAIRMAN ROCHE: That is right, and that seems to be the general experience.

MR. CLARK: I would like to propose a problem here. You say safety caps and impact and tinted goggles shall be issued to each employee, but shall remain the property of the company to be returned when the employee ends his employment. Well, we have eight thousand men in the yard at the present time, and we have yet to issue a safety hat or goggles that remained the property of the company. We have sold them to

to shipyard employees especially during lunch hours or at shift changes.

Some of those public address systems are being used to very good advantage.

7.1 A safety supply store shall be established in each shipyard where safety shoes, safety hats, protective impact goggles and tinted welding goggles shall be made available to shipyard workers. Shoes may be sold at or near cost to employees but safety hats and impact and tinted goggles shall be issued to each employee but shall remain the property of the company to be returned when the employee ends his employment. Equipment such as work clothes, gloves, welders helmets, may also be stocked and sold to employees if desired.

7.11 Goggles may be stocked in the central tool room or first aid department but should be fitted as described in paragraph 7.2 following.

MR. KENDALL: You say there again 'shall'. You say, 'A safety supply store shall be established.' Now, it is my impression there have been some rather flat statements made by the Maritime Commission that you shall not have the stores within the confines of a Maritime Commission yard.

CHAIRMAN ROCHE: And I have been definitely instructed to include this by the Commission.

MR. KENDALL: You are all going to get it?

MR. DE JARNETTE: You could call it "absorptive lenses".

CHAIRMAN ROCHE: The suggestion has been made also that we call it "filtered lenses".

MR. WHITE: You do not mean the combination of the two impacted and tinted?

CHAIRMAN ROCHE: Definitely. Impact and tinted. They practically all have them.

MR. WHITE: I am reminded that at night the glasses do not have to be tinted for a chipper, does it? —

CHAIRMAN ROCHE: He should have them tinted, if he is working in close proximity to any welding operation. I think we can solve this problem by taking out the word "shall", and putting in the word "should", in this paragraph, but that i not solving the problem. In my opinion, we should say "shall"

MR. KENDALL: I would suggest that you leave the word "shall" in there. I can see your point, but we are interested in getting this equipment to the men, and we are not getting our welders to wear absorptive or filtered lenses under their welding hood, because they do not want to buy them.

MR. PACKARD: What we are doing now is asking for a deposit for the hats which is returnable any time they wish to terminate their employment, and if they have a secondhand hat given to them, we just charge them one dollar or one dollar and fifty cents, whatever it is worth as a deposit, but they get their money back.

the men the same as we did the shoes. Now, if we start now issuing these hats, then we have got to consider the morale problem that will confront us of major proportion. Therefore, I doubt very much if it is feasible for us to adopt any such plan. I think it was you who suggested this morning the main difficulty with this. It is true that you issue the hats on a tool check, and when the man quits, he has lost the tool check and lost the hat, and he pays you for the hat and goes on.

So why not sell it to him in the first place? I say that, especially in view of the fact that you might have a very difficult problem on your hands of morale in New York.

Now, that to my mind is a question that somebody is going to have to answer for me, because I cannot answer it myself.

CHAIRMAN ROCHE: All right, let us have some other discussion on that.

MR. CONLON: Let him but it, or not, as he pleases.

(Off the record.)

MR. DESJARDINES: In regard to paragraph 7.1, I do not like the reference in there to the word "tinted" goggles.

CHAIRMAN ROCHE: I have been looking for a good name for that, and that is the simplest one that I have been able to find. Under "goggles" we cover Bureau of Standards that are approved.

requirements of the U.S. Bureau of Standards. (See Section 9.1 on Welding for Additional Eye Protection for Welders.)

MR. KAYE: There might be some question shade 4 or 5.

CHAIRMAN ROCHE: Or its equivalent. You can use letters or numbers.

MR. DESJARDINES: No. 3 is very satisfactory, and I believe that No. 4or 5 is rather dense.

CHAIRMAN ROCHE: I use No. 3 myself, but this 4 or 5 is recommended by the AFA Standards.

MR. DESJARDINES: Should you not mention A, B or C?

CHAIRMAN ROCHE: Or the equivalent.

MR. JOHNSON: I think that "4 or 5 shade" should be taken out, because I believe they should go to the A, B, C, or medium or dark.

CHAIRMAN ROCHE: If you trust me, I will put in the proper designation to fit that, and get in touch with Mr. Johnson.

MR. WHITE: Did you ever wear a tinted glass in a tank chipping at night?

CHAIRMAN ROCHE: No, I have been in many a tank, but not at night.

MR. WHITE: You could not do it.

CHAIRMAN ROCHE: Why not?

MR. WHITE: You cannot see. That means that a man has to have two pairs of goggles.

3k CHAIRMAN ROCHE: There is your answer. I would suggest that you take a deposit from them equal to the amount of the hat.

7.2 The attendant of the safety store should be skilled in fitting safety shoes, and if goggles are also issued, he should be trained in proper fitting and servicing of goggles.

8.1 Impact resisting goggles of a type suitable for the particular job and also of a type meeting the requirements of the U.S. Bureau of Standards shall be worn by every employee exposed to the hazard of eye injuries. Practically every employee in the shipyard, with the exception of those working inside offices, are either directly exposed to eye injury from the work they do, or indirectly through working near operations likely to cause flying objects.

8.2 Except where temporary lack of goggles make it impossible, each employee shall have his own pair of goggles. If it is necessary to reissue goggles to different employees, the goggles must be sterilized after each use.

8.3 Goggles supplied employees should be carefully fitted to their face to prevent irritation and to prevent the entrance of foreign objects around the edges. (See paragraph 7.2)

8.4 All employees working in proximity to arc welding operations shall be required to wear anti "flash" goggles, of at least No. 4-5 shade, (or equivalent) of a type meeting the

They get the misconception that if you do not have a green goggle, you have got a flash burn, and I believe the answer to that is, whether it be tinted or otherwise, that you do receive great benefits from you plain lenses, but it must be of a curved nature. A flat lens will not protect you.

CHAIRMAN ROCHE: The data we have accumulated does not indicate that.

MR. BOWMAN: It might be that the men who are given these goggles are more apt to wear the clear lenses, because they are not as heavy as the tinted ones.

CHAIRMAN ROCHE: What do you recommend?

MR. BOWMAN: No. 2. I do not have any reason for it. That type of glass is very light.

MR. W. W. WALL: You have only two rays of light that you have to contend with, which is infra red and ultra violet. You can cut out with clear glass all of your ultra violet, but not infra red, which runs 45 per cent of your burns. So, you would say about 55 per cent of your chance is cut down with a clear goggle.

CHAIRMAN ROCHE: It is true there is some protection given by clear glass, but it is true that we have had eye flash with clear glass goggles being worn. You do not cut out sufficient for long exposure to give adequate protection, and I believe we should go on record as recommending either goggles or removing the welding operation where when somebody

CHAIRMAN ROCHE: However, you have got to protect your chippers against eye flash, whether you remove the welding operations from inside the tank while they are chipping, or whether you supply them with tinted goggles that protect them. You have a choice of the lesser of two evils; which is it going to be? You admit there is a problem there?

MR. WHITE: Yes, I do. That means that thousands of men will have two pairs of goggles in their pockets. I might not be a very good safety engineer, but I would never put a man in a tank under any artificial light with a tinted goggle, because he cannot see.

MR. DESJARDINES: I have not had any experience on that.

MR. FRAZIER: We have had trouble at times on that, where men complain that they cannot see, and we issue them clear lenses, and they work satisfactorily. In fact, the clear lens is approximately as protective from eye flash as is your tinted goggles. We have records to prove that on certain things. There is a misconception, I believe, so far as your tinted goggles are concerned. We work on the theory that if you have a shade it will protect you, and with your experience in welding, I believe you will find the curved lens, even in the clear, will also cut down your rays, and you can become immune at times over a certain period of time to eye flash rays.

That is the reason these men visit the first aid stations.

assigned.

9.2 Personal protective equipment used by welders shall include:

9.21 Welders' protective hood provided with the proper shade of tinted glass for protection against the harmful rays of the arc and a clear cover glass to protect the shaded glass.

a. The shades or their equivalent, recommended are:

Up to 30 Amperes - No. 6-7 Shade

30 to 75 Amperes - No. 8 Shade

75 to 200 Amperes - No. 10 Shade

200 to 400 Amperes - No. 12 Shade

Over 400 Amperes - No. 14 Shade

b. Shades may also be selected from the following table:

| Rod Diameter | Welding Glass Shade No. |
|---|---|
| 1/16 | 10 |
| 3/32 | 10 |
| 1/8 | 10 |
| 5/32 | 10 |
| 3/16 | 12 |
| 7/32 | 12 |
| 1/4 | 12 |
| 5/16 | 14 |
| 3/8 | 14 |

who is exposed who does not have adequate protection. If you do not agree with the provision here, we will have to have some solution, and some practical, usable solution that will give protection to the employees, and certainly assist in every way so as to not stop production.

MR. FRAZIER: Do you mean by that, not designating either tinted or clear, but that either will be satisfactory?

CHAIRMAN ROCHE: No, sir. We are designating tinted.

MR. WHITE: You cannot wear tinted glasses at night.

CHAIRMAN ROCHE: We have only had two people who have raised objections to it.

MR. JOHNSON: I believe that a lot of the eye flash can be overcome by using clear goggles at night, and side shields, and enforcing the rule on welding shields. You do not need to have it any bigger than two pieces of paper to do it.

CHAIRMAN ROCHE: Possibly we should put in another paragraph here on shields, on the use of welding shields.

MR. GRAHAM: Would anybody like to make a suggestion as to the type of welding screen that should be used, whether it should be three sided, with a hood, or not?

CHAIRMAN ROCHE: We have some in there.

9.1 All welders shall be made familiar with the hazards of their work and they should be instructed in safe methods of performing the various types of jobs to which they are

must do. Are you going to follow up by recommendations for punishing anyone for the violation of these rules?

CHAIRMAN ROCHE: We are not. We are not going to follow up with the punishment of anyone for violation of these rules. The safety engineer's job is to lay down the company's policy to a man as soon as he starts. From then on, he continues to train that man in safety, and it is his job to so train the man that he is willing to obey the safety rules. If you want to punish them, that is your job, and not the Maritime Commission's job.

MR. WHITE: You would not make a recommendation that some disciplinary action be taken if some man violated this thing continually?

CHAIRMAN ROCHE: No, I would not, with anything published by the Maritime Commission. That would be asking for too much.

MR. SINNOTT: Is it your idea that these various yards are to pay for this laundering if the shirts are flame proofed?

CHAIRMAN ROCHE: No.

MR. SINNOTT: They can be laundered now without the flame proofing being taken out of the shirt.

CHAIRMAN ROCHE: That is the first time I have heard about that.

MR. SINNOTT: The duPont people prepared some preparation, and I understand they can be laundered in a special

c. The welders' hoods should be inspected at least weekly to detect possible light leaks, cracked protective glass or badly fouled or missing cover glasses. Any defects discovered shall be corrected at once.

9.22 Protective leather welders' jacket, long sleeved wool shirt with buttoned collar and leather welders' gloves and safety hat.

a. It has been found satisfactory in the hot summer months to substitute flame proofed cotton shirts. If this is done the flame proofing, which must be reapplied after each washing, should be done under the direction of the shipyard. This entails that laundering also be done by the company; commercial laundries are rapidly undertaking this type of work.

That is substituting for the wool shirt. Now, I know that you use those down in the South, and some on the West Coast in the hot country. Does everyone agree that that should be left in there if they are flame proof?

9.23 Hardened and tinted protective goggles with side-shields to be worn under the hood for protection against harmful rays where the hood is raised and for protection against flying scale and chips. The goggles should be of a type meeting the requirements of the U. S. Bureau of Standards and of at least No. 4-5 shade or equivalent.

MR. WHITE: All of this seems to fall upon what they

form, and there are 11 yards with approximately 3,500 injuries that are completely broken down on a practical statistical basis. By "practical", I mean that there is an analysis of the cause and the means of prevention of each and every one of those injuries. Now, if you want them, you can get those reprints of that article by communicating with Mr. Roche and he will have the Bureau of Labor Statistics send them to you. I would think that everybody here would want copies of that. Now, if there is anybody here that does not want a copy, say "me."

Hearing no "me's", we will just give this list of attendance here to Mr. Roche, who will transmit it to the Bureau of Labor Statistics and ask them to send about five copiesto each one of you. That will amount to about 500 copies.

We have with us today, and I would like to have him come up and just say "hello" to you, Dr. Peterson of the American Medical Association. We want to have Dr. Peterson come up and say "hello."

DR. PETERSON: (American Medical Association) Hello! (Applause.)

It is a real pleasure to be here and meet with you today. The notice of the meeting came to my attention a little late, otherwise I could have participated in what you talked about yesterday.

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UNITED STATES MARITIME COMMISSION

and

UNITED STATES NAVY

MEETING IN REGARD TO MINIMUM REQUIREMENTS FOR INDUSTRIAL HEALTH AND SAFETY IN SHIPYARDS.

Held in the Century Room, Hotel LaSalle, Chicago, Illinois, on Tuesday, December 8, 1942, at ten o'clock a.m., Mr. Daniel S. Ring, Chief, Shipyard Labor Relations, United States Maritime Commission, presiding.

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CHAIRMAN RING: I have a number of announcements to make. First of all, anybody who has not registered should register immediately. There are cards available and they can be obtained at the little desk outside the door. We want a complete record of everybody who has been here.

Secondly, there is quite a report by the Bureau of Labor Statistics on injuries in shipyards during the year 1941 that is in the course of preparation. That is a review in general of conditions in 92 shipyards with respect to the injuries sustained there and a breakdown as to the nature of those injuries. The Bureau of Labor Statistics is presenting that in written form in the near future, in printed

done. Is that satisfactory to you?

Then we will have that discussed with these four men who are coming in, and we will get a consensus on this and put this thing into effect.

Now, I want to thank you for your close and careful attention, and for the interest that you have taken in this job.

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(The meeting adjourned until 10:00 o'clock a. m., Tuesday, December 8, 1942.)

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better than carrying an additional piece of equipment.

CHAIRMAN ROCHE: I would like to see them made as cheaply as possible without using metal, and there is a definite need for thousands of these screens.

MR. GRAHAM: For a screen that small, there is plenty of scrap sheet metal around in the yard, of, say, 16-gauge, that will provide the welder with sufficient material, if he is not careless.

CHAIRMAN ROCHE: Whose yards were those screens in the West developed for?

MR. HOGAN: In the Oregon yard.

CHAIRMAN ROCHE: They are very fine.

By the way, I believe we should change "should" to "shall", and after that, we will add the words "where practicable". Perhaps that is why I put the word "should" in there.

We have to get out of this room very shortly, and a lot of this stuff that you find from here on you will want to do, I know, and you will want to add to it, because it covers specific craft practices for the most part. So will you take these with you tonight and write in in pencil or ink the corrections that you would like to have included, and sign your name, your company connection, and your address on them, and give them to me tomorrow morning, and I will, in turn, put these corrections or additions in there where it can be

3-hs

you have to offer on that?

MR. GRAHAM: Don't they all sign a daily labor report? We take our records from the daily labor report.

MR. KOSSORIS: Then you have got daily reports, and it is very simple to add them up.

MR. GRAHAM: Well, we have to reconcile that, and I think that is easily done.

MR. KOSSORIS: Do all of the rest of you have your records on that basis?

MR. I. G. JONES, (Southeastern Shipbuilding Corporation, Savannah, Georgia): It is absolutely impossible for us to get it on anything other than a four or a five week basis. It is like pulling teeth now to get it from the department on that basis, and I would like to see it on either a four or a five week basis.

MR. KOSSORIS: What you are going to do there is that if you are going to mix the thing up, and have some of them on a monthly basis, and some on a four or five week basis, when we start compiling them, and comparing them with each other, the experience will not be quite the same. It may not make any difference, I do not know.

MR. JONES: On this injuries on fatalities, are we going to use the 6,000?

MR. KOSSORIS: You make no charges whatsoever.

MR. JONES: Don't you think that should be X'd out th--/

38hs a fair comparison, wouldn't it? That would give you somethi to work on, and what you would lose on one case, you would pic up on another case, so at the end of the year it would come out approximately right.

MR. KOSSORIS: There is no objection to keeping them, if you want to, and I suppose many of you do, but so far as we are concerned, all we are after is the frequency rate, and if we know the distribution in terms of fatalities, permanent impairments, temporary, et cetera, we have a pretty good idea of what that story is.

MR. CONLON: Do you mean the total employees now at work?

MR. KOSSORIS: You can take that information from your payroll.

MR. CONLON: That is what I was going to ask you about, I believe that most of us keep our payroll by the week, and it is very difficult to get it exactly, and we have been doing it for the Maritime Commission on a four or a five week period.

MR. KOSSORIS: Couldn't you break your week on the number of days, if it is two days out of the week, or two-sixths, or one-third?

MR. CONLON: Well, it is very difficult to get them to do that, because it requires a lot of work in the payroll department to break it down that way.

MR. KOSSORIS: Well, what is your suggestion? What do

37hs

Under the "Days Lost" there is a column for injuries during the month, and that is simply the time that you have lost for injuries that occurred during that particular mo , and if people are injured in earlier months, and are still out in the month reported here, you can cover that absence under column "D".

Now, we have to break this up in this way, because on a monthly reporting basis, you cannot accurately accumulate anything, because you have to give it recognition as it comes up, and so by breaking it in this way, you should have no difficulty whatsoever.

Under the non-disabling injuries, we are just asking for the number that occurred during the month.

The frequency rate is shown as Item No. 10, and that is explained there immediately following that heading. It is a very simple operation, and you put it directly on the form to save the trouble of having to look for it in any other place.

We are not asking for the severities for the very simple reason you cannot develop a severity rate on the monthly basi not knowing what your time losses are going to be. A man get hurt in April, and does not get back to work until July, and you cannot tell me in April what the severity rate is, because you would not know the total time.

MR. KAYE: However, the doctor's estimate will give . .

were reported during the earlier month, and subsequently turned out to be more severe in terms of disability who are listed, there is a temporary total, and a permanent impairment under Items 7 and 6, respectively.

MR. GRAHAM: How can you determine that? You cannot tell what the severity is until the accident is concluded, so how do you know which is the greater?

MR. KOSSORIS: You recorded for any earlier month.

MR. GRAHAM: Suppose you have a man who has been severely injured through a fracture, and you expect him to be injured for a year, and another one with the same injury, and you do not know which is the greatest severity.

MR. KOSSORIS: You do not estimate that. If a man has a fractured arm, so far as you know, all you know that it is a temporary disability. If he has lost his arm, then you know it is a permanent impairment. However, if, say, three months later the fracture develops and he is further impaired, then you just report that under item 6-(b), and that indicates that an earlier injury has now turned out to be a more severe injury.

All we are trying to get is a count of the fatalities that are permanent and temporary. If you wish to put this on an annual basis, and let these ride, that is all right, but on a monthly basis, you have to use a make-shift arrangement, in order to catch up.

[illegible], the name of the company, and the location of the yard, the average number of employees, et cetera. Now, some of you are going to ask me what do you mean by "average number of employees", as of what time. I did not put that on the form, I do not believe, but Item No. 4 gives us the total employee hours worked, and Item No. 3 gives us the average number of employees, on the payroll during the 15th of the month.

Now, there are all kinds of ways of getting the average of that type, but that is the simplest and the most useful. Have any of you any suggestions for making it any simpler than that?

Now, you are going to have women, so it is employees, instead of man-hours. That is a question of adding up the total number of hours of the work your employees work, and you can get that from your payroll, or estimate it very closely.

You will also notice, we are listing fatalities, permanent impairments, temporary total, and then total, and under the total is "non-disabling injuries." Now, reading across the column, in the first two columns is the number, and in the last two columns are days lost. Under the number, you split that up into those that occurred during the month, and those of greater severity than formerly reported. Those that occurred during the month, and any of those that occurred and

go to the labor statistics, and a copy to the Maritime Commission, and a copy for your own use. You will notice on the reverse side of the form which I will cover first, because that is my part of it, we have departed from the scientific approach, so I have been told, for the prevention of accidents.

In other words, what is desired is that we want to know the cause of the accident, and what is wrong. We did originally want to include a definite statement for each group of such items as to what you were doing to improve the conditions, but it would make it too bulky, and we were trying to simplify it.

When we have finished with this, it will be on an eight by eleven sheet. That will enable you to tell us after you have filled out the form, what are the predominant hazards, so that you will not use the scattershot method of engineering, but the direct approach method. You will be able to tell what is wrong, and what is causing the most trouble, and therefore intensify your work on the greatest hazard.

Now, on the reverse side, I am going to take a rest for a minute, and I am going to ask Max Kassoris to get up and talk about that briefly.

MR. MAX KOSSORIS: This form is a substitute for the Maritime Commission form that you have been filling out, and this is pretty much of a summary type. We need to know, of

So many times these forms are issued to a man on the job, and they are never collected. You will notice down at the bottom of this form, the specifications provide approximately three by five, and you can have them made up in pads. A lot of yards have them, and this is about the consensus of the forms that I saw, and if there is anything like that, they will not be changed in your yard, but if you do not have them, we will ask you to put them in.

4.13 U. S. Maritime Commission reports.

(a) To be submitted monthly to U. S. Navy - Maritime Commission. To include over-all breakdown of predominant accidents, types and causes, accident frequency and severity rates. Total number fatal cases, total of lost time cases and the time lost, total all cases including first aid and number retreatments. Also to be shown are cumulative frequency and severity rates January 1 to date and changes in frequency and severity rates from preceding month. A brief statement of what is being done to control each of the predominant accident causes. This form to be used also for report to management of shipyard. To be submitted in triplicate so as to reach U. S. Navy-Maritime Commission not later than 15th of month following month record covers. (Sample attached.)

We have got a new form for the U. S. Maritime Commission. It is a combination form to do a double job, with a copy t

(a) Giving all vital data on case plus statements as to unsafe act and/or unsafe condition, reason unsafe act or condition was permitted to exist or occur and the immediate corrective action taken or recommended. (Sample attached.)

Let me say this: Most yards have such forms, and they will not be changed if they are any good at all, but this is a suggested form, and already I have had several suggested corrections for it.

MR. GRAHAM: What supervisors do you mean?

CHAIRMAN ROCHE: The immediate supervisors. What we would call in the manufacturing industry a foreman's report o: accident, but we do not do that in shipyards, because you kno the difference in terminology. You don't dare say even "leadingman", because that means a different thing in differe sections of the country, as I found out, to my sorrow.

Now, take a good look at that form, and if any of you have anything on it, will you see me after a while, and we will go at it again?

4.12 Safety Engineers' recommendation form.

(a) Form used by safety staff to record recommendation made during inspection. Used for follow-up. Made in triplicate; one to leaderman or quarterman on job, one to genera manager, or other designated executive, one to safety department files after use to check performance. (Sample to be included)

CHAIRMAN ROCHE: How do some of you men from the ship-yards feel about that?

MR. PACKARD: I like it the way it is.

MR. GRAHAM: The safety director's work is a full-tim job in any manner, regardless of the size of the yard.

CHAIRMAN ROCHE: I agree with you, but they do not all devote full-time to it. You take the several yards out here, who are building small craft and have maybe 200 men, they do not have a full-time safety engineer, and I would not recommend a full-time safety engineer for a plant that size, because they cannot support them.

MR. GRAHAM: I do not agree with you, because they can support them if they have one death in ten years.

CHAIRMAN ROCHE: We have got to be practical about this. To begin with, we have not enough safety engineers to go around right now, and we have the big job of training them, and those of you who have been trying to hire them will know that. Let us keep that point in mind, however, for tomorrow on full-time, because I can see where the point might come up.

The next thing for consideration is No. 4, accident prevention forms and reports.

4.1 The safety director shall cause to be designed and put into use at least the following forms and records:

4.11 Supervisor's report of accident.

given in the interest of efficiency and for training the safety staff.

(n) Submission of the required reports on the status of safety in the shipyard to the U. S. Maritime Commission at the time and intervals hereinafter requested.

3.28 The duties of the assistant safety director, the staff engineers and clerks, shall be as delegated by the safety director.

In other words, he is boss of the safety department.

Now, we will come to No. 4, accident prevention forms and reports.

MR. BEHLEY: You made a point about full-time staff directors for employees here in connection with this; and so don't you think that that should be brought in there some place? We may get a haphazard setup some place within the law.

CHAIRMAN ROCHE: Don't say law. This is not a law. If we are going to say we should have a safety director in every shipyard, and not say the number of employees, I do not think we can say "a full-time safety director", because where you have only two or three hundred, or five hundred men, and we have a lot of yards like that, I do not think you can expect to get a full-time safety director there.

MR. BEHLEY: How about adding it where we have 3,000 and 1,500?

29hs

CHAIRMAN ROCHE: That is the safety director, and you interpolate there "through his staff." Obviously, you could not be there 24 hours a day. You can put in "and/or" if you want, but any of these activities, the safety director as such, is the administrator, and he makes it click. I do not care if he ever goes to a safety meeting, if he gets a good safety record in his yard, but he will go to them, I know, or he will not get that.

MR. PACKARD: I know my particular yard has used this original program that came through with the inspection, more or less as a Bible, and we are going to have to be careful there in our wording, because inasmuch as most people know nothing about safety, and they have steered around it as much as possible, now they have come face to face with it, and they have to do something about it, and they are very apt to go by the line.

CHAIRMAN ROCHE: Well, let us go on with our next paragraph.

(m) Directing the activities of his staff including the assistant safety director, so that the shipyard accident prevention program will be efficiently operated. It is expected that the safety director may delegate certain responsibilities to his staff engineers, such as that of acting as secretary of certain of the safety committees. Permission for such delegation of authority is expressly

department of labor representatives on matters pertaining to safety.

And we better put in there "and health".

MR. E. E. WHITE (Sun Shipbuilding Company, Chester, Pennsylvania): In paragraph (h), "consulting with the U. S. Maritime Commission on safety problems which cannot be solved with methods or information at hand", don't you think that a staff safety director goes beyond the bounds if he consults with the Maritime Commission if the matter should have been taken up with his own management, instead of the Maritime Commission?

CHAIRMAN ROCHE: What I should have explained is that you will have a regional safety consultant in this area for that purpose.

MR. WHITE: Not with the plant engineer, or any Maritime Commission?

CHAIRMAN ROCHE: No, with the regional safety representative, that means. Would you rather have it put in there that way?

(Cries of, "Yes".)

All right, it will be "consulting with the U. S. Maritime Commission, regional safety consultant." We will change it that way.

Now, on (i) does anyone object to the words "safety and health", because you may have occasion to contact your health

ing supervisor, the safety training of all employees. (See Section 3.23).

(f) Correlating safety work with medical (first aid) department to insure proper selection and placement of employees according to physique, experience and intelligence and for the purpose of securing or giving information that will tend to control existing or potential accident causes.

I know one yard where the safety engineer does all of the hiring and he does first aid work, too. The last thing he did was to take the general manager to the opera the night he had to work. I am telling you we are outlining your duties specifically, and anything extra gets extra compensation.

(g) Making personal inspections and supervising inspections by staff and by special employee committees, for the purpose of discovering and correcting unsafe conditions or unsafe work practices before they cause accidents.

(h) Exchanging information with other shipyards on best safety methods and consulting with U. S. Maritime Commission on safety problems which cannot be solved with methods or information at hand.

(i) Making certain that all federal, state or local laws, ordinances or orders bearing on industrial safety are complied with.

(j) Securing any necessary help or advice from state

25hs

CHAIRMAN ROCHE: Most of the yards do not have hygienics, and somebody has to take care of that.

MR. JOHNSON: They asked us what medical school we graduated from in our yard.

CHAIRMAN ROCHE: What we want is that they will ask for your assistance. For example, I have run into the same condition in other yards, and have found that the medical department never makes trips through the yard, and they do not know what the term is that is used in the yard, and they do not know whether it is toxic or not. Well, the safety engineers can bring that to their attention, and get some action in that way.

The safety engineer may not dodge the responsibility for his post in the health and hygiene program in the yard. That is definitely a part of his job.

(d) Maintenance of the accident record system, making all necessary reports, personal investigation of all fatal or serious accidents, investigation through his staff of all accidents, securing supervisors accident reports, checking corrective action taken by supervisors to eliminate accident causes.

And you can interpolate there "through his staff wherever possible." We know that the safety engineers have only 24 hours a day, just like anybody else.

(e) Supervising, or closely cooperating with the train-

... I will catch that in the minutes.

Now, we will continue with 3.25, duties and responsibilities.

3.25 Duties and responsibilities. The duties and responsibilities of the safety director shall include:

(a) Complete responsibility for formulating, administering and making necessary changes in the shipyard accident prevention program within the limits of authority granted by the shipyard management. The safety director shall also be required to correlate the shipyard accident prevention program with the minimum standards of the U. S. Maritime Commission.

Any objection to that?

(No response.)

(b) Submission of regular monthly, weekly or daily reports on the status of safety directly to the general manager of the shipyard.

May I say right there, that that "general manager" term will be put in agreement with whatever our committee decides for that term.

(c) Acting in an advisory capacity on all matters pertaining to safety and health (see paragraph "F" following) to the management, general manager, superintendents, foremen, quartermen, leadermen, purchasing department, engineering department, commissary department, or contractor.

MR. JOHNSON: I question the help proposition.

23hs

is to be so and so, that we will be able to control the wage scale in that way without setting it.

CHAIRMAN ROCHE: You have got a very good point there. We have considered that, but in the interest of keeping this thing from getting too bulky, it was left out. The consultant will assist in discovering these men in each case, and training the men whom you are going to use as inspectors in the yard, and give you a hand in that way. That is going to be done somewhere along the line in the training program, but it is going to be done specifically for shipyards.

MR. SNIDER: In regard to 3.1, you say a safety director, et cetera, and shall be appointed for all shipyards having 1500 employees or more. See Section 3.25 for duties and responsibilities. "The safety director shall report to and be responsible to the general manager."

Suppose the function of the safety organization were a safety director from the parent company, will that change the status of that any?

CHAIRMAN ROCHE: Yes, you report to the general manager of his yard, and to him. In other words, anything that is better than what we have here, we are not kicking about, but it must be at least this.

MR. SNIDER: Then I would like to submit that you add the words "and to".

CHAIRMAN ROCHE: All right, we will put that in there,

getting in overtime, and lots of fellows have been lost that way, and some of these fellows are making less than $40 a week.

So, there is some need for stabilization there, and treating these men and these inspectors should be treated in a different manner, and I agree with you, but I do not think it is part of the safety standards to set the wage scale, because we would have zone agreements, and everything else to take care of, and you know what that is.

MR. J. M. HAYDON, (Moore Drydock Company, Oakland, California): On 3.1, safety director, about the number of employees, et cetera, I think there should be something in there to cover what I have in mind. I happen to know of one yard where the safety director was the fire chief, the first-aid man, and captain of the guards. In this particular case, I know he was all three, and I think his duty should be safety director, and nothing else.

CHAIRMAN ROCHE: You will find that clearly outlined under 3.25.

MR. SCHMOHL: I think an inspector should have some electrical and other experience before he is trained as an inspector. In most cases, we have to train our inspectors, and I believe that you cannot get an average man in that category, who does not run around $1.20 an hour, and I think if you put in there that the requirements for the inspector

director and staff shall be appointed for all shipyards? Is that agreed, regardless of the number of employees?

MR. JOHNSON, (Kaiser Company, Portland, Oregon): I would like to see in that same paragraph some provision for a wage scale for inspectors, or whatever you call them. I mean literally that. I have heard so many times from people all over the country that they cannot get, or they cannot keep competent inspectors, because they are not allowed to pay them an adequate wage. They are paying them a helpless wage, and they expect them to contact foremen and supervisors and I do not think that that is right. I think it should be in there that an inspector gets not less than a journeyman's wage.

CHAIRMAN ROCHE: I will show you some of the scars where the stitches have not been pulled out yet, because I brought that matter up. That is a matter for the labor relations division, as such, and not the safety division, and it is being taken care of.

MR. JOHNSON: Well, the stabilization board said, why not put it in there, and then they will have something to back them up?

CHAIRMAN ROCHE: I am afraid that we cannot get away with that, but it is being taken care of, and you can count on that. I know that where you get a good man who makes a good inspector, and you pay him $40 a week, maybe, and the first thing you know he is out welding, and making more money

ford, Connecticut): In paragraph 3.1, I would suggest that you put a provision in there that this applies to yards having 1500 employees or more. There are many yards throughout the country on small ship construction that do not quite reach that figure. Why should not these provisions apply to the smaller yards under 1500?

CHAIRMAN ROCHE: You tell me. Does anybody agree with that, that yards having less than 1500 employees need a safety engineer, or can the personnel director take care of that? (Cries of, "No".)

What is the low figure?

MR. GRAHAM: Five hundred.

MR. DESJARDINES: I think that is rather low.

CHAIRMAN ROCHE: I think so, too.

MR. KENDALL: I do not know how you can get any figure on a thing like that at all. Back in the days before Pearl Harbor, and before the war, we had a number of repair yards that did not have a thousand employees. Some days it would operate two hundred, and then a ship would come in, and we would jump from two hundred to twelve hundred over-night.

We have a safety engineer in every yard.

CHAIRMAN ROCHE: I agree with you.

MR. KENDALL: I do not think you can set any figure on it.

CHAIRMAN ROCHE: Well, shall we say then that the safety

the foremen and the leadermen take an active part. Under the production conditions which we are operating today, the foreman does not play that part, and for one man to have to do the selling job and the educational work for fifteen hundred, I repeat that that is almost an impossibility.

CHAIRMAN ROCHE: I agree with you that under the present setup, and the present operating methods in some of the yards, but where a determined effort has been made to secure the cooperation of foremen, and where recommendations such as are submitted here, and such as Jack Wolff has talked about are made, and carried out, we do get the cooperation of foremen very definitely, and there are several such yards that are only getting that.

MR. GRAHAM: I think if this would be a mandatory standard by which we are to operate, it would get a better chance of success.

CHAIRMAN ROCHE: It might almost be considered that.

Now, that has been changed from the 3,000 in the initial, to 1500 for the additional employees, and I will change that example later on.

Now, how about 3.24? One of the troubles we frequently find in yards is that the safety engineer does all of his own clerical work. In fact, some of them stay there nights to do it. Is that satisfactory? If so, we will continue.

MR. T. J. WHELAN, (Travelers Insurance Company, Hart-

that.

MR. PACKARD: If you were going to put in a starting figure of 5,000 men, you can use two shifts, and if you have a safety director and one assistant, that will be tough. I think we should cut that down to at least 3,000, and if not 3,000, to possibly 2500. I am more inclined to 2500.

CHAIRMAN ROCHE: Well, would you say this: Change that figure to 3,000, and then under paragraph 3.21, have it read this way:

"An assistant safety director in yards having 3,000 employees or more, except that there shall always be at least one safety engineer per shift." Is that all right?

MR. PACKARD: Yes.

CHAIRMAN ROCHE: Is that satisfactory that we adopt the figure of 3,000 for the initial, and 1500 for the final?

MR. SINNOTT: Are we talking now about shipbuilding, or what? If you change that to safety engineer on each shift, you might have alittle difficulty with a small job of only ten or fifteen men.

CHAIRMAN ROCHE: Well, you have got to be logical and reasonable about this whole thing.

MR. SINNOTT: You might have thirty or forty ships in the yard, and you might have none of them in the actual building of a ship.

MR. GRAHAM: The theory of a good safety program is that

17hs

something in this business of increasing perhaps safety supervision. Would you still hold that view with that in mind?

MR. KENDALL: Yes, I think so.

CHAIRMAN ROCHE: What would be your suggestion?

MR. KENDALL: I would say about 1500.

CHAIRMAN ROCHE: One to 1500. That seems to be the consensus of the group.

MR. WALTER J. CONLON, (St. John's River Shipbuilding Company, Jacksonville, Florida): The thing that puzzles me is the clarification of the purpose of this booklet. It seems that there is a difference of opinion as to the purpose of this book. Is this to be a set of standards that we adopt, or is this merely to be a guide to possibly refer to at intervals, or is management going to adopt this?

CHAIRMAN ROCHE: This is a set of standards to be adopted as a minimum.

MR. CONLON: By the safety department?

CHAIRMAN ROCHE: By each shipyard, by management, and the safety department as a minimum requirement, and it outlines only minimum requirements.

MR. PACKARD: I think that the 5,000 is a little high. It would probably help a lot of us, if that was brought down to around 3,000, to begin with.

CHAIRMAN ROCHE: I was wondering why nobody thought o

16hs

and it is all right to try to get them, but it is a very difficult job to actually get them. They do not grow these days.

MR. GRAHAM: I simply maintain that the minimum requirement is not adequate to function properly. I think that your minimum is too high.

CHAIRMAN ROCHE: I agree with you.

MR. GRAHAM: I think it is too high, because it is impossible to operate with the number that you state here.

3

MR. R. J. BEHLEY: (Travelers Insurance Company) The Service and Supply Department of the Government is requesting one to 1500. That might help in standardizing this idea of Government control.

MR. CARTER KENDALL (Bethelhem Steel Company, Bethlehem, Pennsylvania): The one thing you overlook is the length of time a yard has been operating. Most of our yards have been operating for quite a few years, and production people are pretty well trained. We do not need as many as one to a thousand in some places. If you make that a minimum, then you work a hardship on us.

CHAIRMAN ROCHE: In spite of the fact your yard may be operating a long while, the question of increase of employment, and bringing in new unexperienced workers, is something to consider, and also the losing of your regular production personnel. That all has to be considered, and so there is

to be logical about it. If you have got three shifts, you need three men.

MR. PACKARD: I do not think we should have anything like that, because in most of them they have been staffed for some time. I know that I have more men than that, and some of these economical heads of departments are apt to get the idea that we have got too many, and are going to get ambitious, and ask us to cut down our staff. I had to fight very hard to get my men to the present level, and I would not want to lose them at this time.

CHAIRMAN ROCHE: What is your recommendation?

MR. PACKARD: I think that it should be one man to 2500, or one man to 1500.

CHAIRMAN ROCHE: These figures are the consensus of t group meeting we had here in Chicago, and they are their figures.

MR. SAM T. SMITH, (Consolidated Steel Corporation, Los Angeles, California): Again, that imposes a penalty on us who have a functioning organization that has maybe one man to a thousand, and I would say, "At least one safety engineer to 1,000 men."

CHAIRMAN ROCHE: Please understand that this is a minimum. I emphasized that several times, that these are minimum standards, and one thing we have all got to realize is this: That it is all right to want 25 or 30 safety engine

or the safety directors can be spent on clinical detail.) All office functions, while adequately supervised by the safety director, should be carried on by clerks so the greatest possible amount of time of the safety director and his staff may be spent in the shipyard.

MR. GRAHAM: I think it is entirely inadequate. The National Safety Council offers the broadest experience of any organization which we know, and they have the only real experience to offer, and they never suggest that there be as many as one man trying to handle 3,000. It is a job almost impossible. We are doing a war job with production as the paramount issue, and the management is not going to be able to give us the time necessary to follow through with the educational work we need. Therefore, I think that we should be suggesting one man to a thousand as a minimum.

CHAIRMAN ROCHE: I would like to hear some more discussion on that.

MR. H. E. PACKARD: (Los Angeles Shipbuilding and Drydock Corporation) Something like that would create a terrific effect upon us, and would work a considerable hardship on a lot of us. For example, if we have 8,000 men, that will only give us two men. We will say we have 8,000 men divided up into three shifts, and so how can you put two men in three shifts?

CHAIRMAN ROCHE: The answer is "at least". You have got

13hs

meeting tomorrow morning. Mr. Clark will be chairman of that committee.

MR. DESJARDINES, (Navy Department, Washington, D. C Why not use the highest ranking executive?

CHAIRMAN ROCHE: I will ask the committee to take that under advisement. I will drop that matter now, and continue with the balance of the material.

By the way, I meant to put on that committee Mr. Graham instead of the gentleman from Houston, and I am going to add Dave Kaye.

3.2 The staff in the safety department in addition to the safety director, shall consist of:

3.21 An assistant safety director in yards having 5,000 employees or more.

3.22 One safety engineer (safety inspector) for each additional 3,000 employees.

Example: If a yard has 35,000 employees there would be required a safety director and an assistant plus 10 safety inspectors.

3.23 The staff of engineers shall be distributed over the three shifts in proportion to the number of employees on each shift.

3.24 One clark and/or stenographer for the first 5,000 employees and one clerk for each additional 7,500 employees. (It is not to be assumed that the time of safety inspect

12hs

MR. GEORGE F. SCHMOHL: Speaking of resident plant engineers, I take it that you mean Maritime engineers? What about the Navy?

CHAIRMAN ROCHE: In the Navy, the same thing would hold true. I do not know, frankly, exactly on that, but I can inquire. Do we have a resident engineer in the Navy Yard?

COMMANDER CARLSON: Each engineer in the Navy Yard, operates directly under the management.

MR. CLARK: On this top management thing, the gentleman back here from the Delta Shipbuilding Company, New Orleans, spoke about a certain procedure that should be followed. That is the line of authority from top management. My conception of top management includes all of the corporate officers, and those staff officers performing the funttion of management, and how this safety department gets up to the top management should be left to the individual shipyard, to whatever operating practice would be most suitable for that particular yard.

CHAIRMAN ROCHE: Now, because we are pressed for time, I know it is getting late, and this is your set of standards, and so we can get a definition that will be satisfactory to the group on this, we will appoint a committee to go into that matter. I am going to appoint Mr. Clark, Mr. Snider, and the gentleman from Houston to formulate a definition that will fit under paragraph 3.1, and report on that at this

operative. We want an individual thing. We want it brought under the eyes of the man who is responsible for the profit and loss in the company. Perhaps I should have said the t or the men.

MR. GRAHAM (Delta Shipbuilding Company, New Orleans, Louisiana): I would suggest that the top management be comprised of representatives from the general superintendent, or whoever has control, or holds the title in charge of production, and executive vice-president, or president of the company, as top management, and the safety engineer. All three are interested in production, economy and safety. I think that could comprise the top management, very satisfactorily, rather than an individual, who is interested in a particular department.

CHAIRMAN ROCHE: You got a good point, with one exception, the safety engineers are employees of the shipbuilding company, rather than of the Maritime Commission.

MR. GRAHAM: They are charged by Washington with the responsibility for safety in the yard, in which they operate, aren't they?

CHAIRMAN ROCHE: Yes, the resident plant engineer.

MR. GRAHAM: Yes, the resident plant engineers are charged for the safety in the yards.

MR. GREENLEE: He is an ex-officio member of the executive safety committee by Maritime Commission order.

responsible, not only for production, but for safety, too.

I agree with you that there should be some definition, perhaps, and if you would be willing to offer one, we would be delighted to have it. No one has ever done that, that I know of.

MR. GREENLEE: Why use the wording, then?

CHAIRMAN ROCHE: All right, then you give us a better one. We are trying to make it as good as possible.

MR. S. T. SMITH, (Consolidated Steel Corporation, Los Angeles, California): I heartily concur with the first gentleman. In our particular plant, we are dealing with the treasurer and assistant president of the company, and it is a healthy situation to know that you are with the top management more so than with your production management, and I would say, "top management" instead of "production".

CHAIRMAN ROCHE: Would you agree with the term "highest operating executive"? That brings it down in some cases to a superintendent.

MR. SNIDER: Aren't the companies under the Maritime Commission required to have what is known as an executive committee on safety?

CHAIRMAN ROCHE: Yes.

MR. SNIDER: Well, why wouldn't they report directly to the body that is supposed to be responsible for that?

CHAIRMAN ROCHE: Because the executive committee is not

9hs

it, other than my original suggestion, which was "top management". It was brought out this morning without the cooperation of top management, we are not going to do anything with the safety program, and to be absolutely frank, in think in order to properly institute a safety program, we are going to have to have the brass hats in on the thing.

In other words, it is going to have to come from the top of the heap, and I also seriously question whether or not the question came up about the removal of a hazard, that would probably slow up production a little bit, which way the production chief would lean. His interest is principally in production, and I am thoroughly convinced that our praise there should be "top management". I believe if we use the term "top management" that that would be sufficiently inclusive.

MR. SNIDER: I think that would still leave it up to us to be interpreted.

CHAIRMAN ROCHE: You mean by the top management, the high management?

MR. CLARK: Yes.

CHAIRMAN ROCHE: All right, let us say in the Kaiser Shipbuilding Company that Mr. Kaiser looks upon safety in his yard as his responsibility as much as anybody else's, and he holds all of the general managers in his yard equally

8hs

been made. I believe one of the difficulties that safety has its proper place in production, and especially since the outbreak of the war. I am not citing my own company as being the acme of a safety program, how it should be run, et cetera, but we have found by setting the safety department up as a division of the production department, that safety has become inseparably wrapped up with production, and by having the safety department report directly to the production department, you have full compliance and responsibility.

CHAIRMAN ROCHE: That is the other side of it. I think what the argument is here the definition of your term "top management", and the fact that "general manager" in one plant may not fulfill the functions of a general manager in your plant. What we need then is a definition of what we mean by "top management", or by "general manager". Will you agree with that?

MR. CLARK: I believe it specifically mentioned, or that he specifically requested it be connected with production, and he doubted whether the safety division setup under production would be as essential as it would outside of production. I believe it is more effective outside of the production department.

CHAIRMAN ROCHE: What is your suggestion for the change? Will you suggest a change?

MR. CLARK: I do not have any specific change to make on

41hs

all up at the end of the year, anyway. I do not think it makes very much difference.

MR. KOSSORIS: It makes a much neater setup for compa son to have it on a monthly basis than to have it at different times of the month, say, from the 5th to the 13th, or whatever the time might be.

Suppose we leave it on that basis, and ask you to estimate for whatever period you have and ask you to give us the estimate so far as your man hours are concerned.

MR. WHITE: Couldn't you extend that to the 15th of the month, instead of the 10th of the month?

CHAIRMAN ROCHE: It is the 15th of the month. That is an error at the top of the page.

MR. SMITH: I have a question on this setup. Suppose yards have private contractors coming on the yard doing incidental jobs, and there are Maritime and Navy inspectors in the yard, but are they to be included in this setup, and are they all to meet with these same requirements?

CHAIRMAN ROCHE: If it is a sub-contract, and they are paid by the shipyard operators, then they must be compelled to meet the requirements that are met by your people in the yard. We had a case like that involving asbestos, because eventually it is going to come back on your shoulders, and somebody will have to pay the bill.

MR. E. S. WINFREE, (Pennsylvania Shipyards, Incorporat

40hs I am referring to "c" on fatalities.

MR. KOSCORIS: Well, you mayhave days lost during the month because of injuries.

When it comes to permanent impairments we can estimate pretty closely what those losses amount to, but in terms of actual time lost for work, that is another story. The time charges do not take that into account, and this will.

Are there any other questions on the form?

MR. LESSIONS, (Great Lakes Engineer): Could we take the consensus so far, whether these hours should be based on a weekly basis, or a monthly basis, rather than certain days? Most of us figure our man hours per week, and on a four-week basis would be much easier figuring than breaking them up in the middle.

MR. KOSCORIS: What is your pleasure on that?

MR. GRAHAM: Isn't it a matter of record in regard to the man-hours worked? I believe that information is available to every department that wants it, isn't it?

MR. COHLON: We have 13 four-week periods throughout the year.

MR. JOHNSON: (Kaiser Company, Portland, Oregon) I think we are exaggerating the importance of a few man hours more or less. I do not see why they cannot take four full weeks and take the two extra days, or whatever they are working. What if they do miss 10,000 man hours, you will catch it

that you will have a uniform rule all the way through.

For example, a man who is turning a lathe today for a private job, may for the next 29 days be working on Marit: Commission or Navy work, and similarly with every other classi fication.

So, I think in view of the fact it is so small, you might as well lump it right in, and include it all in there.

MR. SMITH: My question then is in this regard: We have quite a number of private contractors who come into our yard who do insulating work, and doing maybe construction work while we are still operating, and also the Navy and the Maritime men, who are doing routine inepection work on the job. That is what I had in mind.

CHAIRMAN ROCHE: That is the way I understood your qt tion, and he thought that I did not. Where you have a contrac tor in the yard, he may not endanger your men, or he may endanger your men by his operations.

MR. SMITH: The question was this morale affect of these particular employees of ours seeing these other fellows allowed to do as they please.

CHAIRMAN ROCHE: That is why when we discussed this matter, we designate the responsibility to the engineer, so that when contracts are let to outside contractors, you will write into the contract the safety provisions that they are expected to follow, and they will usually be the same that

42he

Beaumont, Texas): I think Mr. Smith's question was suppose a ship came in for repairs, and supposedly belonging to Texas we as a shipyard repair that ship, and they are not actually working on Maritime contracts, then how would you report that

CHAIRMAN ROCHE: Do we want reports where work is done in a Maritime yard, but not on Maritime work on employees involved in that work? For example, repairing a ship belonging to the Texas Company. I would say no, offhand.

MR. RING: I would say, "No" offhand, but the percentage of that work is going to be so small and infinitesimal that I do not think it will reflect any degree of change whether we have it or do not have it. I thinkthat could be included or not included, as you all decide here.

MR. WALLACE I. TERRY (Moore Drydock Company, Oakland, California): It would help us a great deal, I know in our particular case, if we could lump the whole thing all together

Now, take an example where a man is injured in our machine shop, and he may be working on Navy work,maybe Maritime, maybe repair, and it is pretty difficult to ascertain whether or not that was a Maritime job he was working on or not. The man does not know half the time himself.

MR. RING: I doubt if there would be, say, one out of five hundred cases, taking the whole thing over-all, that would be allocated to a private job, and I do not see why you cannot include all of it right in the single report, so

I see one or two references in your standards to the work which the Council on Industrial Health has been doing. I am sure that that body will be greatly interested in learning the results that you achieve through this conference and through the work which Dr. Drinker and Mr. Roche have been carrying on.

I believe that you are thoroughly alive to the vital problems which are confronting you and the profession at large during these trying days and what steps we are taking to arrive at some satisfactory solution. I think if we all attempt to figure these things out together, we will make considerable progress.

Thank you very much. (Applause.)

CHAIRMAN RING: I want to say that I have a telegram from John Green, president of the Industrial Union of the Marine and Ship Building Workers of America, affiliated with the C. I. O., which, as usual, I have left upstairs in my overcoat. John said that he wanted to extend his regrets for being unable to attend here. He was meeting in Washington under circumstances that prevented him from leaving, and he wanted to extend to this conference his sincere wishes for a successful prosecution of the objectives thereof.

I want to have that in the record, because I know if he could have been here he would have been here.

less technical than the medical people, I suppose that we can just call on the safety men for a report now, and then they will have their minimum standards bundled up and tied up and ready to go.

I will call on Mr. Roche to report for the safety men.

(Mr. Roche here assumed the Chair.)

CHAIRMAN ROCHE: As you know, we did not finish our job yesterday. We had to postpone it. I asked each of you to write your suggestions and recommendations of the part not finished in the draft safety operation section of the standards. I hope you have all done that.

I have a report from the committee of which Mr. Clark was chairman. I would like to present that at this time.

Your committee appointed to make a change in the language in paragraph 3 wishes to report as follows: That the last sentence of the above-named paragraph be changed to read as follows:

"The safety director shall report to and be responsible to the highest ranking managerial executive or his designated representative."

Three of the four committee members were present at the deliberations, Mr. Snider being absent.

Will someone please move that report be accepted?

(The motion was made, seconded, put to a vote, and

carried.)

CHAIRMAN HOCHE: Then that will be the language of that particular section.

May I have a report from the committee on the supervisors' form? Is the chairman here?

MR. KENDALL: We made very few changes in this form. We have no written report to offer because our meeting just adjourned about five minutes ago.

One suggestion was to include at the top of this form, which I understand will be printed on a 5 by 8 card, instructions to be submitted with the monthly injury summary form by the 15th of the succeeding month to the Division of Labor, Accident Statistics, Bureau of Labor Statistics, Washington, D.C. That is merely to direct it down the right channel.

Then on the first line we thought it wise to add a few words to the first sentence: "Fill out for every disabling injury whether or not compensible." That will clarify that point materially.

Those are the only changes we suggest in the supervisory report of accident form.

CHAIRMAN HOCHE: You all have that form in front of you now. You have heard the changes made and recommended. Will you make a motion that the report of the committee be accepted?

(The motion was made, seconded, and

CHAIRMAN ROCHE: May I have a copy of that before you go today?

MR. KENDALL: Yes.

CHAIRMAN ROCHE: We still have the procedure of appointing the committee for the group as a whole. We have about three hours' work to complete that. If we get a committee we can begin the safety part of that job. I would say there is about an hour and a half's work, perhaps, left.

So I am going to leave that authority with Dan Ring for this action. He would like to finish this job before we leave today, but I would like to have immediately, or as soon as the committee is appointed all the suggestions and criticisms you have written in longhand. I have several already.

MR. KENDALL: Mr. Chairman, in reviewing that form, we also took a crack at the monthly injury summary. But we suggest you include in the top of that form the address, with a notation as to the number of copies and where they should go. We are not really certain as to how many copies you want of that. Do you want four?

CHAIRMAN ROCHE: Three.

MR. KENDALL: Is that the total?

CHAIRMAN ROCHE: That is the total for us. The yards, of course, will want to keep one.

MR. KENDALL: That should appear on the form. In our

opinion.

We also had in mind possibly the addition of an item, under item 10, "Frequency Rate", to include the accumulated year to date frequency. That would overcome the objections that were raised yesterday on the four paid periods against five paid periods, automatically carrying that out and taking it along and also giving you a much better picture of your frequency, because one swallow does not make a summer, and one month might be terriole and the next might be fine, and your year to date will give you a better picture.

(Chairman Ring here resumed the chair.)

CHAIRMAN RING: I think that is fine. Suppose we have a motion for the adoption of the recommendations of the committee in that respect, that is, if somebody agrees with him, of course. Move it yourself, Mr. Kendall.

MR. KENDALL: I so move.

(The motion was seconded, put to a vote, and carried.)

CHAIRMAN RING: Now, with respect to the situation that the committee on safety finds itself in, we do not want to go away from here without things wrapped up and done in a proper manner. I think, after the time that has been spent in coming here and the sacrifice that everyone has made to be present at this meeting, it would be little short of a crime if we left, say, an hour and a half's work between the complete job as far as the safety standards are concerned

and the condition that it is now in.

I think, therefore, that unless there is objection I will appoint a committee to get to work on this as soon as we have finished with the lecture that we will have this morning, and I will them to report to this meeting at 2:00 o'clock for final action.

Do I hear any objection to that? There is no objection.

The committee, I think, should be composed, in view of the excellent results from the safety committee thus far, of Mr. Kendall, Mr. Kaye, Mr. Frazier, and Mr. Frank Johnson. Now, we ought to have somebody from labor on this committee. I think we will designate Mr. Fail and Mr. Graham, with Mr. Roche serving ex officio.

We have the privilege of having with us Dr. Hedwig Kuhn, who knows a great deal about eyes and knows a great deal about their effect in industry. He has kindly consented to show some slides here and, rather than move into the medical part this moment, I think we will change the line of procedure to permit Dr. Kuhn now to present and illustrate a slide lecture that I know everyone will be interested in, and then we will have the medical department report immediately after that, at which time Mr. Kendall, Mr. Roche, and the committee on safety can really start going.

I will now turn the meeting over to Dr. Kuhn.

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DR. H[illegible] KUHN, (National Society for the Prevention of Blindness, Hammond, Indiana): The thing that shipyard safety men, medical men and production men are interested in, as in all industries, is "Eyes for the Job," which means for-Safety and for-Production. That falls into a few very simple categories.

The first problem, of course, is one you all know about, and have already talked about here, and that is-goggle protection. Perhaps the road of eye protection is one that has been laid by Harry Gilbert, who has done more to be the pioneer in goggle protection than perhaps any one person in the country. This is, protection to the eyes. If you will, however, please, keep the two things separated, - protection to eyes, and protection from defective eyes.

An all-out program is practically the only goggle solution in most industries, so that it includes management, when it goes into a plant, and visitors, when they go into a plant, - then the men will also be sold on it.

The various types of goggles you have seen. You who are in this room know that 'cover-alls' are obsolete, and that to put a pair of goggles over a pair of glasses is out. People who are unfortunate enough to have astigmatism know by experience that if their glasses are tilted even a little bit they get a blur. To put a goggle cover-all on top of glasses and tilt the [illegible]

safety.

We have goggles for many purposes; splash, light and gases, and then we have the newest development, the prescription goggle, which has eliminated the "cover-all" goggle. Because of the prescription goggle and because of the elimination of the "cover-all", fitting and adjusting is essential. Most of your toxic fumes trouble, of course, are really simply ventilation problems, and not protection problems to the eye itself.

Then in discussing accidents, because of eye defects, one has the other side of the picture, from accidents to the eyes. Your men have broken arms and broken shoulders and accidents because of eyes, and I think that is the thing that most generally safety men completely overlook.

As one example, you have all seen this ad in the papers of the Better Vision Institute, - "He says my eyes are O.K." "Oh, yeah! That is what I thought." This could have been taken out of a case in our office, where the fellow came in with a foreign body in his eye. After checking him through we found he had no depth perception. He was amenable to questioning, and I asked, "Have you had many accidents," and he said, "I have had a lot of foreign bodies." I said, "I don't mean that. Did you ever get your fingers in a machine?" He pulled his left hand out of his pocket and he had three fingers off. That is what I mean when I say

Zk accidents from eye defect.

You have a crane operator with a visual defect. You have an accident, and you report it, but you make no mention often of whether the other fellow caused the accident, or the fellow who was reported as being hurt having been the cause of it himself. In other words, that crane operator can by dropping a load break a shoulder. He is the fellow you want to find out about, not the fellow with the broken shoulder. The man who had somebody drop something on him can be blind in both eyes and yet that defect has no relationship to his accident, while the possible eye defect of the crane operator does, - if this crane operator has no depth perception, that was a definite contributing cause of that accident. That type of record is becoming a part of the safety man's plans for reporting, and must become a part, otherwise defects and accidents cannot be correlated with statistics at all. Truck drivers and tractor drivers and men on scaffolding, et cetera, fall in the same category.

This brings up the first major question: What do we need to know about an employee's eyes for safety?

We need to know four things basically.

1. Acuity, or sharpness of vision, for distance and near, with and without glasses. That is essential. It is essential for legal reasons, compensation reasons, and it is essential for our records.

2. You need to know about depth perception. Mind you now, that does not mean you are going to do anything about it - often you cannot, but you do need to know.

3. Muscle imbalances for near and close. You can put a crane operator on a crane who has absolutely perfect vision in each eye, 20/15, and if he has a muscle imbalance he may start the day beautifully, but after three or four hours he fatigues, and he ends up working on a dangerous job visually unstable. (To me a definition of the accident prone man is a clumsy person, or an awkward person, and therefore he is an unsafe person. Isn't that what any safety man feels? Therefore, if you are visually clumsy, then you are unsafe, and a person with a muscle imbalance is visually clumsy.)

4. You need to know what sort of color appreciation a man has.

And, finally, for certain precision jobs you need some near vision tests.

The Snellen chart at twenty feet for industrial records is impossible. That does not, in the first place, give you an accurate record, because 90 per cent of the time it cannot be accurate. The light is wrong, the nurse is looking the other way, when she covers one eye, or, as in our district, South Chicago, among the people that come to work over in Indiana, classes are held. The men get all the Snellen charts and learn them backwards and forwards, so they can come in

the employment office and give you anything you want. Often the chart hangs over their heads as they wait, - as I saw in one large ordnance plant. Here the chart is in the waiting room, and the nurses take the vision tests while the next fellow sits there and memorizes it. So that kind of a visual record does not mean anything. Then why take it? When you are through with you, you haven't got anything. Therefore, all your visual findings can best be done binocularily in a compact battery of tests, ren by a layman, under medical direction, handled in a way that lay people also can use the information, and not in any academic laboratory manner. It is awfully important to remain practical and not to be academic and to lay down really minimum rules in time of war, but stick to the minimum.

These are the elements of "visual performance," as we call them, or if you want to speak in an engineer's terms, I have reduced it to a simple term of "visual skills," which is actually what it is.

The slides that I am now going to show you are based on a year's lost time accidents in a plant. They will show you the relationship and correlation between vision, these visual elements I told you about, - acuity, muscle imbalance, depth perception and color-in the all-out plant average of a plant that has about twenty thousand people, and the same attributes among the men, with accidents.

To get these accident figures it was an almost impossible job, because the accident records were so inadequate that we could correlate them only with difficulty. Now that safety men are beginning to keep real accident reports, which include illumination, and a check mark of attentiveness or of a man being on an off shift, or what the foreman's idea about the man is, - you can go to the statistical laboratories, as we did at Purdue, and ask them to correlate what relationship, if any, visual factors have.

This need for real correlation was shown in California, where they never could get any correlation between traffic accidents and eye defects until they suddenly thought, "We only know that a man has got poor vision, we have no record of which eye, or what kind of accident." If a car hits you from the right side and you are blind in that eye, that is one thing. If a car hits you from the right side and your left eye is blind, that is another thing, and correlated with full information you do get definite relationships.

In this slide the top row of columns represents a cross section of the plant, and the first column is acuity, with 20 per cent defects; the second column is uncorrected acuity, that is when everybody had their glasses on in the plant, showing 8 per cent. The third column is depth perception, with 14 per cent defective, and the fourth one is color, 2 per cent, the fifth one being muscle balance, or 16 per cent

In the lower row of columns are the percentages of these same five categories among the men who have lost time accidents. In each instance the per cent is higher, especially in the men who remain uncorrected in spite of glasses. From this slide you get the idea that there is something besides acuity and that all of these visual factors play a part in accidents.

This leads us right into the second basic question, - what do we need to know about an employee's eyes to insure maximum production and minimum waste, which I presume you are also interested in.

We need to know the same facts, and this next slide simply is a rough dramatization of what we mean by visual skill. This is a young lady looper and a crane operator. The crane operator must often operate at a span of 150 feet, but your looper works at eight inches eight hours a day straight ahead, not down. Now, the two people cannot fill both of those jobs with the same visual equipment.

The next slide shows you the percentages on sixteen thousand employees that were checked in the Calumet district, and the per cent of defects of these five things talked about, i.e., acuity defects, 21 per cent, uncorrected acuity, 12 per cent, depth defects, 16 per cent, color defects, 5 per cent, and muscle imbalance, 22 per cent; and this is the same in any industry. It would probably be the same in the

shipyards or anywhere else.

The next slide shows you that people that apply for a job have almost the same average, almost the same percentage of defects, and that a person does not get a visual defect by going into industry. He may have an accident, but you don't get a muscle imbalance.

From this type of information you can set up a job classification which should be kept very simple, - Class A, the fellow that has to be absolutely perfect; Class B, the fellow that does not have to be perfect (intermediate); and Class C, the people that have to be perfect especially for close-in production work.

Why all this? Primarily to eliminate the visual bottlenecks to efficiency and the visual aptitudes, the thing that Mr. Wolff is doing with training in your overall analyses. You cannot train visual defects, such as acuity, but you can train muscle balances, and you can sometimes train depth perception. That makes for accuracy and makes for safety. Every day the army and navy air corps recruiting headquarters send down the boys that have muscle imbalances, and they are trained until they can pass 100 per cent and go on ahead and fly planes. If we can do it, for aviation, we can do it for industry as soon as industry sees the results accomplished.

The next two slides show you the relationship between visual performance and production accuracy. One is the visual

performance records for inspectors. You have good vision, fair vision and poor vision, and the correlations are direct with speed of work. In other words, your speed, you notice, is highest with your poor vision. The foreman will pick out an inspector and say, "That girl is my best inspector, she is snappy and speedy." But actually she is the one that lets things go through. Accuracy of work, at the bottom of the column that you saw, is inverse. In other words, the better your vision, the more accurate you are, and the poorer your vision, the less accurate you are.

The other slide demonstrates the same thing for clerical work, in which your record forms are shown by the columns resting on the table, indicating the relative amount of work accomplished by people who passed the vision test and failed in the three jobs indicated. In other words, you will do more work and do it more accurately if you can pass all these visual tests.

Now, this last slide I just threw on to show you how nature or survival of the fittest eliminates automatically the people that cannot do their job. This is according to the specialized occupations, - three groups, crane operators, clerks and loopers. The crane operators, you see, are the most perfect in all groups, and the clerks' acuity without glasses is very bad. Do you know why? Most clerks are near-sighted without their glasses. They cannot see, which does

not make them poor clerks, perhaps quite the contrary, but is just a matter of record. Among the loopers, muscle imbalance is very high. The girl working eight inches from her eyes is in a predicament unless she has special visual skills.

Now, what to do with the situation as is, - i.e., with the employees at work. 1. You check the visual skills of these employees in the departments of critical production. (I repeat, we must be realistic about programs in war times and not suggest an all-out program when industry could iron out trouble spots but has no time for an all-out program now, at least.)

2. Correct the defects among the critical production employees, wherever possible.

3. Shift the employees, if necessary.

What to do with new applicants? 1. Allocate them and place them according to their visual skills, and I am sure Mr. Wolff will bear me out in wishing that the people that he trains were tested and picked and allocated, so he could teach them what they can do. 2. Correct them before hiring, wherever possible, with glasses, or with training, or with surgery.

Now, just a word about the welders, and just a comment on your statement in the outline here. Welding is mainly a problem, I believe, of protective equipment and its use. I think the welder that wears his equipment, where that equip-

ment is adequate, has no troubles. It is the fellow that breaks the rules accidentally or ignorantly that has trouble.

We did a little job in research on welders on Vitamine A. Welding does not make a bit of difference. Welders have no depletion of visual purple.

Now, in your Section C, No. 1, under flash burns and foreign bodies in the eye; Mr. Ring has said that when you put in your records the word "shall" it means a certain things, and you say, "An eye flash shall be treated only by a doctor." I wonder if you have any idea what that means? An eye flash is a simple thing to take care of. We have a lot of flashes, but nothing compared to what the shipyards have, and we train our nurses to take care of flashes. The only thing we do is to make sure to see the cornea at the time or within 24 or 36 hours so we know there has been no injury to it or other trouble. But to anesthetize the eye, to make ice compresses, to follow it up with directions at home, all of it under medical supervision and outlined by the doctor, I grant you is something a nurse can do, and if it is stated that, "It shall be treated only by a doctor," it means that that one thing has to be violated. My suggestion would be that you indicate it should be done under a doctor's direction, and leave it to his discretion how to handle these things.

Another thing came up. One of the doctors asked me what

to do in cases where flash symptoms do not develop for seven or eight hours afterward and they report to a general hospital and that general hospital does not know anything about industrial accidents or flashes and does not handle them well.

May I suggest that your Maritime Commission, either through its medical consultants or the U. S. Public Health Department, issue a very simple sheet of instructions to general hospitals in the industrial areas with directions on how to take care of a case that comes in with a history of a flash. There is no more uncomfortable man, and there is no man who suffers, not damage, but suffers pain and discomfort as much as the man with a flash who is not treated properly.

I was very much amazed to hear this morning the comments made that welders are off three or four days in the yards. Our welders go back on the job. They are given and medication to use during the day and told where first aid can give them ice compresses once or twice during the day, if necessary. They are not off the job, except very rarely, nor are foreign bodies off the job, unless serious.

The comment was made that if you have a patch on a case you send him home. You cannot put him on a crane or a scaffold, but you can let him go back to work, and if your men are crane operators, do not put them on the crane, but you can give them something to do and not have them be absentees.

The final suggestion to you from a mere ophthalmologist

k is, first, that where possible you think about visual tests, even on the Pacific Coast, where labor has not yet understood that tests for new applicants will come, I can tell you that in one plant here labor is the instigating power behind an all-out visual testing program to increase production in a plant doing vital war work. I am sure that as soon as labor knows this is not a discriminatory test, but a test that will add to one's merit rating, bring in more money, they will not be against it; 2. Make a visual survey at the key spots of your plant, to find out what you have, where you think your trouble is; 3. Have a goggles program to protect eyes; 4. Use of the visual data you have to protect other people from defective eyes, and, finally, 5, have a rehabilitation program.

You have been very kind. Thank you.

MR. RING: Dr. Kuhn knows by now when you put out, you lay yourself open for any attack on anything you have said. I am wondering if there are any questions? Dr Kuhn did not know she was going to be subjected to this cross examination, and I am going to take this on my own. Has anybody any questions they would like to ask?

DR. CROFT: I would like to ask what would be the simplest and most accurate way of examining a test to put a man through before employment? If we are going to have pre-employment, I would like to ask the simplest to maintain accuracy.

DR. KUHN: For the last two years we have been working on a new instrument. It is not fully on the market yet, but it is being released, in spite of priorities. But I am sure shipyard peopled would be in the vanguard of the right and need for this instrument. It is an instrument designed and manufactured by Bausch & Lomb Optical Company. However, we have had to set up a compromise program which has been put to use these last two years, in which we have drawn up for the telebinocular, entirely new record forms and entirely different interpretations of tests.

MR. RING: Of course, this is way over my head, but are there any more technical questions?

I want to say to Dr. Kuhn that we appreciate very, very deeply the time and the sacrifice that she has made to be with us, and we are very, very thankful to have had the opportunity of listening to her discourse, and I am sure it will be very helpful to everyone here.

Thank you very much, indeed, Doctor.

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DR. SPENCER: Could we possibly have copies of Dr. Kuhn's address? I think we would all profit by it if we had it.

CHAIRMAN RING: Suppose we put in an order now for mimeographed copies to the extent, I would say, of about 500 of Dr. Kuhn's remarks. The stenotypist can prepare that for us and deliver it to the Maritime Commission, and I will have it distributed to everyone who is here.

I think we are ready to take up the report from Dr. Drinker on the medical and health standards, and now I think that that committee on which Mr. Roche is ex officio member and which is composed of Mr. Kaye, Mr. Kendall, Mr. Frazier, Mr. Johnson, Mr. Fail, and Mr. Granam, may roll up their shirts and get together and be ready to report here at 2:00 o'clock with a comprehensive program that will enable us to get the minimum standards of safety out of the way.

I will now turn this meeting to Dr. Drinker.

DR. DRINKER: I would suggest in this report that we skim through a rehash very rapidly of the things which we know are not controversial and let us get them out of the way, and then come back to the items on which we ask the committee to report, because that will unquestionably have to have a little discussion.

On Section A, medical facilities, it was suggested that we had too few clerks down there under paragraph 4 and that

we should change that where it says "at least two clerks" t "at least three clerks."

Are there any objections to that? I assume that is approved, then.

There was a suggestion that there be a station wagon provided within the yard to be used as an ambulance inside the yard. I do not think we need to make that obligatory, but we could put it in as a suggestion. You remember, it was said that a station wagon running around about the yard worked out better than an ambulance, because of the feeling the people had of an ambulance going around. It seems that is a matter of preference and could be left to the medical and safety groups, especially to the medical, in the yard.

Is there any objection to that? It seems to be O.K.

It was suggested that in "physical facilities" there be a statement definitely in that list that there be a provision for a clerk and registration desk which will be put in so there will be a distinct room for the registering and purely clerical part of it as distinguished from the records that you might want to get only the nurses or the doctor to take.

It was also suggested that in the "physical facilities" we state definitely that provision may be necessary in certain districts, as in the south, for what amount to facilitate handling four groups; that is, male, female, white.

and colored. We would not put that in as a requirement, because that naturally will shift to the district, and I see no reason for making that any sort of an obligatory standard. That is, we would not put that in as a "shall"; is that right?

There was a suggestion, and it was agreed upon -- I do not think it can come in in the standards, but we will do what we can about it -- that safety inspectors and medical attendants be paid on a scale which will enable the yard to keep such individuals and keep them satisfied and on the job.

Now, on the possible controversial items: First, the suggestion was made by Dr. Kuhn -- and I doubt if there would be any objection from anybody. You notice in the medical standards we did not give the directions to the medical staff as to how they would treat them. These come under here as a guide to the safety department and, so far as we are concerned, we question the need of putting them in under the medical standards. That is, our inference was that they would be left up to the doctor to arrange, anyway. But, if it is to be stated, I think the suggestions made by Dr. Kuhn no one would object to at all.

They were to the effect that eye flashes shall be treated according to methods prescribed by the physician, and do not state that they would have to be treated by the

physician. That is agreeable.

The other item he suggests is a brief notification to the hospitals in the general district as to how eye flashes might be treated when men call upon them or upon the local physician. I am sure we would all agree to that. If agreeable to you, we will see that step is taken, to get out such notices, preferably through the American Medical Association.

You can help us on that, Dr. Peterson.

DR. PETERSON: Yes.

DR. DRINKER: We assume you will help us, is that right?

DR. PETERSON: That is right.

CHAIRMAN RING: You are going to do it?

DR. PETERSON: That is right.

CHAIRMAN RING: That is out of the way, then.

DR. DRINKER: I would ask now that you turn back to the proposed resolution, and I want very much to have the pro and con sides of that presented so there is no feeling in anybody's mind that it has not been properly discussed. You remember that you approved of our appointing a committee, which started with Dr. Rieke as chairman and Doctors Spencer and Croft as fellow members, and that committee was formulated to write several resolutions.

DR. RIEKE: It was requested by one of the physicians

between the various company medical directors and the company officials. We have had this experience on the west coast, that the medical directors and the company officials, namely, the Kaiser Company -- I will speak only for the Kaiser yards -- have talked over all medical problems very closely, and we have had no problem on that point.

I was a little surprised, and certainly shocked, to learn that the medical directors in some yards do not have the authority to decide medical situations; that they do not have access to the highest managerial officials in any given shipyard. That, to me, is a deplorable situation. We are not in a position to make any resolution on it. I certainly would contact the Maritime officials to see what they can do to arrange some other type of set-up. I think without question, as a personal opinion, the medical director should be free to go to management in the strongest terms he may deem necessary at any time to protect the welfare of the various workmen. If management and labor is getting along, he may not have to. If they are on speaking terms, I know of no one else who is in as good a position as the medical director to either bring them together or, at least, see that the workmen's welfare is looked after.

I make that as a suggestion to Mr. Ring.

BE IT RESOLVED THAT:

quest by the shipyards, physicians in sufficient number to provide for the execution of the provisions of the "MINIMUM STANDARDS for the CONTROL OF HEALTH in CONTRACT SHIPYARDS OF MARITIME COMMISSION AND NAVY", dated December 7th and 8th, 1942, at Chicago; and, furthermore, that additional physicians be provided, on an essential basis, to insure a safe level of medical care for the employees in areas where minimum standards, herein listed, are insufficient; that the essentiality of Maritime and Navy contract shipyard physicians be comparable with that of Navy Yard physicians while the paramount nature of ship construction shall prevail.

II Prospective employees of Maritime and Navy contract shipyards shall under pre-placement physical examinations by qualified and licensed physicians, in the pursuit of employee health, efficiency and the safety of fellow employees.

III That those employees exposed to particular hazards through their specific occupation or who through their work hazardously expose fellow employees shall receive periodic recheck physical examinations.

IV That a committee be appointed to work with the Council on Industrial Health of the American Medical Association in the preparation of pertinent medical articles relative to the special problems arising out of the shipyard work, i.e., arc flash, welding affections, etc.

by various interests, Maritime people, labor people in the meeting, various physicians, and we submit it for your approval. A discussion would be welcome on it.

DR. DRINKER: The use of the word "essential" and "essentiality" in that first resolution is deliberate, because that is a term with a very specific meaning in the Procurement and Assignment Division with reference to doctors, and it is really important that those actual words be used.

We would like discussion on these resolutions now. I know there are some pros and cons.

DR.POLSEY: It seems that the second item in the resolution could be elaborated on a little bit. It seems to me that specific recommendations should be attached to these resolutions by amendment or otherwise, pointing out what we propose to do when you give the examinations. I think that part was very well brought out by Dr. Kuhn. The ordinary physical examination is not very valuable as they are ordinarily made, either pre-employment or pre-placement. The word "shall", it seems to me, should be eliminated. I think it should be a voluntary thing. Conditions vary in different parts of the country and conditions vary differently in different yards.

There are many yards at this time that do not have proper or sufficient facilities for taking care of the cases

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they already have. I am familiar with several yards of that kind. Some provision should be made or recommendation included that if pre-placement examinations are going to be made, that facilities will be forthcoming.

I think those facilities should be separate, and I think that a different doctor should make those examinations than the doctor who is practicing in the yard.

The reason for that is obvious. A doctor will go a long way in your personal relationship in the personnel problems in the yard if he is not hampered by turning men down or making one man stop one job and go to another job. That was pointed out yesterday to some extent.

I would like to know before this resolution is voted on as to just how far it is intended to go in the matter of serological examination. It seems to me it is rather silly to make Wassermanns. A man may have a negative Wassermann today and a positive one later. So far as immediate infection, I think there is no more danger than any of us encounter who go to a drug store or an ordinary restaurant.

The examination should include, certainly, the deep reflex and triple area reflex and patella, and so on, because that is where you pick up the things that will do damage in tertiary syphilis to the man, or the men working with him. That can be very easily and quickly done.

When --

over of 100 percent -- I was told this morning 150 percent, and I am told in other quarters there is a greater turnover in labor every year -- you are going to make an awful lot of bookkeeping and waste a lot of time in man power and clerical work possibly without reason.

Coming now to the proposition that was discussed yesterday of the difficulties resulting from the exposure to zinc oxide fumes, I do not think that matter enters into this proposition. This is purely a matter of maintaining man power, and I do not think that the Maritime Commission or this meeting should vote on this with any idea relative to compensation or suits.

In the first place, I do not think that who pays the damages enters into the picture at all. It is a matter of placing men where they will build ships and do more work. If a man gets in a condition as a result of something in the yard, he is certainly entitled to be paid for it.

Relative to the X-rays, certainly trained technicians should take the pictures with adequate chest equipment, and the films should be read by a doctor who knows what he sees when he looks at that film. The average physician reading an X-ray film of the chest has not any idea what he sees. His interpretation can be erroneous and of very little value. A great deal of time and effort and money has been wasted on

physician and the clerical help and everyone concerned with it.

I would like to see specific recommendations made, or at least an amendment made, to these resolutions, bringing out the various points that will make the pre-employment or pre-placement examination pertinent to the ship industry and pertinent to the industry in general rather than just an ordinary examination that will take up a lot of time and be done in a cursory manner and won't mean anything.

DR. RIEKE: There is not any argument at all about what the doctor said. I agree on every point, I think.

On these recommendations we avoided certain points, specific points. No matter what you say in specific points in resolutions, if the physicians themselves who carry on those examinations choose to ignore your recommendations, they will do so. So we felt it was better simply to establish the pre-placement examinations with the thought they were to be for the best interest of all parties, the workmen, the work, and so on, and leave, if necessary, to special committees the particular points which shall be included in that physical examination.

I would agree with the doctor that this examination should be entirely pertinent to shipyard work, and so on.

As to the particular type of examination, physicians in

Coast, and so on. So we left those out for that reason. We will be happy to take the doctors' desire on the thing. We feel, in having established pre-placement examination, that that is the thing to do, and that we have gone a long ways. The particular point could be covered by the examinations, I think, and can be determined by some other group, perhaps by the Medical Society group or the Maritime medical advisors, and so forth, in conference with the local medical directors, if need be.

DR. DRINKER: Are there any other comments? I for one should hate to see us at this point detail in the form of rules the precise examinations that should be given. I do not think we need to, and the shortage both of men and physicians is such that it would be a physical impossibility for us to examine to in any way exclude men today. That is the furthest thing from the intent of anybody.

DR. SPENCER: Doctor, may I ask a question? Gentlemen, I do not want to make this in the form of a recommendation. As a matter of fact, I bring it up with great hesitation. I do not want to throw a monkey wrench in the gears, but it would help me a great deal, and I think others, to have a few points clarified as to whom the medical department is responsible.

In those yards where we are functioning, we do not know whether we are responsible to the insurance company who pays

our salary or to the Maritime Commission or to the management in the yard, or to whom. Is that out of order?

CHAIRMAN RING: No, it is in order.

DR. SPENCER: The insurance company pays my salary on a full time basis and I would say roughly 10 percent of my endeavors are concerned with insurance and about 90 percent of my endeavors should be concerned in matters that do not concern insurance.

Moreover, I have been embarrassed to discover that neither the Maritime representative nor the management of the yard nor the insurance company has the remotest idea of who is going to pay for what. We need facilities, and I was surprised to discover that the insurance company was prepared to pay for them. I got down to the yard and the yard was prepared to pay for them, and now the condition has been raised and nobody is prepared for them.

DR. DRINKER: Thank you, Dr. Spencer. I am going to ask Mr. Ring to answer that question.

There was another point which was raised to me. I rather confess it rather horrified me. The representatives from one yard pointed out in very unmistakable terms that the insurance agreement -- I do not mean that as a slam against the insurance companies at all; it is not so intended -- but the insurance agreement with the medical de-

treating anything to do with illness or even an accident that was not industrial in origin. That is, if a man was in the plant and began to have a fever, or something like that, the doctor was not supposed to treat him, and the yard was not supposed to have any obligation to him, to take him home or take care of him, providing the illness or the source of trouble was not industrial in origin.

If that state of affairs is in any way general, it would seem to me it is very much to the interest of the Maritime Commission to do something about it, because it is certainly out of line with modern industrial medical practice, very sorely out of line.

DR. PRICE: Nobody has mentioned in these discussions any specific dangers or hazards or accidents which women are more liable to. I wonder if anybody knows of any particular types of accidents or particular types of hazard which result in accident that a woman is liable to? If so, I would like to know what it is. In other words, when you examine a woman what are you going to look for to prevent her from getting hurt and to be assured that what she has after the injury she did not have before the injury.

DR. DRINKER: Could we come back to that, and get this other item off first?

CHAIRMAN RING: I am very glad that Dr. Spencer brought up that point. There are different rules prevailing in

different States. As far as the shipyard industry is concerned, it is a hodge-podge. In many of the yards the insurance carriers do put the medical department in there. Now, we have got to work all that out. We have got to bring it to some degree of standardization, as far as the ship building industry is concerned.

I think, if it is necessary, we can have a conference with the insurance companies and come to an amicable agreement as far as the Maritime Commission is concerned; at any rate, as to sharing any compensation that might be necessary between the yard and our contractor, which would make it a reimbursable item.

I think in recent years there has been a very broad attitude taken by all insurance companies. The campaigns they have carried on in the public interest and in the interest of public health have been magnificent. I do not think it would be in keeping with that policy to find other than a liberal attitude being displayed by the insurance companies, and in a yard, if an injury is compensable or not compensable, that question has nothing to do with the war effort. We want the man treated and we want him back to work at the earliest possible moment.

We are here fighting for our lives, gentlemen. Man power is becoming scarcer and scarcer, and we have not got

bill. It is a point that is very well taken and it has to be worked out.

I think that we will have to get in touch with those insurance companies that limit the operations of medical men in the yards and through an arrangement that will be mutually satisfactory come to a determination as to who will share the expense for what, and if all of you here who are faced with those problems will address them to the Maritime Commission, we will begin to work on that right away. That is one point.

Now, with respect to who the medical department head is responsible to: We have here recommendations for minimum standards and among them, as I understand, is that he will be responsible to the highest managerial authority or to such person that the highest managerial authority designates. I think that there is a little quibbling in that. Of course, we cannot go out and change the set-up of any company and rearrange its organization chart. We can, and we intend to, emphasize the importance of the medical department to the point where it will not be hampered or fettered in doing the work that comes within its recognized field. We will move everything toward that end.

During the days to come when we have inspectors in the field especially dedicating themselves to health in shipyards, we will run across from time to time points where

we will get reports indicating that the medical department is being hampered or prevented by a poor organizational set-up in the yard from doing its full job, from being given the authority that must always run concurrently with responsibility. If they are going to be responsible for the health of a million shipyard workers' welfare, there is one thing that has to be true, as sure as the sun rises in the east and sets in the west, and that is that responsibility must inevitably carry with it sufficient authority whereby the responsibility can be discharged. That will be one of our basic tenets.

I do not think, however, because of the variety of patterns of operating organizations that we have in all of the shipyards that we can formulate a standard here and say that we will regiment everybody into line and in every plant, regardless what the rest of the set-up is, the head of the medical department will be responsible to a certain person. I think we will have to take that as we move along, and I hope that as we move out and move around that there will be no hesitancy in bringing up those points.

I think we will find as a result of this meeting many ideas will have been expressed, many proposals and suggestions will have been made which we can take into account later without putting them into minimum standards.

Dr. Croft suggested something that is so practical that it stuck right with me all the time: that when men are coming

in for an examination -- and he, I understand, has just insisted on it and has put in pre-placement examinations -- that they be divided into four classes, A, B, C, and D; Class A to be the perfect physical specimen, capable and available for work on anything; B, being a physical person who is capable of doing practically any job in the yard but who in his past history has a minor condition or a minor impairment of his physical structure. You want that mainly for the purposes of the record. Class C, I presume, would be persons who are so incapacitated that they would naturally have to be assigned work which would be limited in kind and in nature by the incapacity of the individual; they would be way down the line. And I imagine that the Class D would be those who are actually unemployable.

Is that right, Dr. Croft?

DR. CROFT: Yes.

CHAIRMAN RING: Now, that is an idea, gentlemen, that strongly appeals to me. Although we do not have to put that down in our minimum standards and bind everyone by it, it certainly does furnish food for thought, and gives us nice channels to have our minds operating along.

Dr. Spencer's suggestions also give us, and particularly the Maritime Commission and Navy, some food for thought with respect to insurance organizations that are set up in the yards. I think that the inevitable result of this conference

is going to be, both as far as the medical departments are concerned and the safety departments, for us to focus attention upon the importance of the responsibilities that have been placed upon the medical heads and the safety heads, and also to draw attention and start relief to the absolute requirement that correlative authority must be given, directly in line with the responsibilities involved.

I hope that this long rambling discourse has to some degree answered Dr. Spencer but, if it has not, I will be very glad to go farther.

MR. BECK: I want to say that in handling insurance in the yards where the contracts are cost plus fixed charges or the insurance is reimbursable cost, we have had no difficulty whatsoever in working out an arrangement with the insurance companies for the doctors in the yards to treat any case that is sent in to the first aid station and for an amicable arrangement for the division of cost.

The casualty division of the Maritime Commission, I am sure, as well as the Navy insurance division, will cooperate to arrange for a proper distribution of the cost of the salaries of the doctors. You would not have any difficulty at all in working that out, I am sure.

DR. DRINKER: There is one item that is in that first resolution that possibly the Navy representatives present may not have been clear about, and I would just like to read

the last sentence again, that had to do with the essentiality of the medical personnel," that the essentiality of Maritime and Navy contract shipyard physicians be comparable with that of Navy Yard physicians while the paramount nature of ship construction shall prevail."

That is, we are asking that so far as the numbers of personnel concerned go in our contract yards, Navy operated contract yards, that we have physicians to compare in numbers with what the Navy would have for treatment of civilian personnel in Navy yards, such as Norfolk, Mare Island, and the like.

Is that conception clear, gentlemen?

DR. BURTON: Yes, but our doctors in the Navy yards also have a certain number of service personnel and some dependents to take care of, so I do not know if you can confine the percentage assigned to civilian care or not.

DR. DRINKER: In the number of doctors in the Navy yards, say, Mare Island and Norfolk, the number of doctors far exceeds for taking care of civilian personnel those we have in the Navy contract yards now, and all we ask that we be on somewhere near an equal basis. Does that seem unreasonable? We are not asking Navy approval of this now, but I want to be sure you understand it.

CHAIRMAN RING: We are going to ask Navy approval of it later, though.

DR. DRINKER: I want to be sure you understand it now. Dr. Burton had no part in these resolutions, so it is unfair to dump it in his lap.

DR. RIEKE: That particular reference to the essentiality does not entirely demand the exact numbers. The feeling is also there that the Maritime and Navy contract shipyards may go out and compete with the civilian population on essentiality, and we feel they should be placed on a relative basis, as far as the need for physicians is concerned, leaving the number of the percent to the procurement division or, at least, placing us on the same footing as other semi-military organizations. The number, of course, is not important. I think that would be covered in your minimum standards, but the particular point I am anxious to see discussed and understood is simply that when you get the ships done they do not say, "O.K., we will give the physicians to the Army and the Navy, and the rest of the world can go hang."

CHAIRMAN RING: May I ask Dr. Rieke a question? As I read that resolution, it means to me that we need doctors in private contract shipyards with just as much degree of necessity as the Navy need them in their Navy yards.

DR. RIEKE: Yes.

CHAIRMAN RING: And that is what we are saying; we need them as much as the Navy needs them.

DR. RIEKE: Yes, that is all there is to it.

CHAIRMAN RING: How is that, Dr. Burton?

DR. BURTON: It sounds all right to me.

CHAIRMAN RING: O.K.

DR. DRINKER: Is there anyone else who wishes to speak either for or against these resolutions?

CHAIRMAN RING: I am always bobbing up on something or other. I was very, very much interested in the talk that Dr. Polsey made with respect to the pre-placement examination. Now, I want to say once more, you can have a pre-placement examination or you don't have to have it now.

If you are going to change this to the point where you say, "Wherever we want to, or wherever it is deemed desirable, pre-placement examinations will be held", you are putting entirely superfluous into these minimum standards, because you are just reemphasizing what you can do now. I think the question is safely before you: Do you want pre-placement examinations based upon the standards that can well be prescribed by the industrial health section, the American Medical Association, and with their guidance; do you want them or don't you?

If you don't want them, throw this thing out of there; if you want them, say so, and don't quibble about it.

DR. DRINKER: Mr. Ring has made it clear that the last thing he wants us to do is to try to railroad this thing through.

DR. RIEKE: Shall be submit those and move that they be accepted?

DR. DRINKER: That is in order.

DR. PRICE: Dr. Drinker, there is one little point I might bring up. I do not believe there is any mention in there about working with the Procurement Assignment Service.

DR. DRINKER: We hoped the implication was there. We are perfectly well aware we have to go before them. We intend to do it.

DR. PRICE: I thought that might be put in.

DR. DRINKER: We have to go before them regardless of this resolution.

Dr. Rieke's resolution is up before you now for a vote.

MR. O'CONNELL: I would like to ask what the Maritime Commission expects to do with areas such as the specific one I am from, the Bay area, where the union contract says there shall be no doctor or physical examination.

CHAIRMAN RING: You take care of that in your labor relations. Organized labor from the Bay area was invited to be here to express itself. Every one on these labor management committees was invited to be here. The opportunity for expression was offered them, and we have not heard from them at all.

If it is deemed in the interest of public health,

through labor relations, we will take care of any of those things that arise.

(Dr. Drinker here assumed the Chair.)

CHAIRMAN DRINKER: A motion is in order in regard to these resolutions.

DR. REIN: I move they be accepted.

CHAIRMAN DRINKER: It is moved they be accepted. Is there a second?

DR. GARFIELD: I second the motion.

(The motion was put to a vote and was carried unanimously.)

CHAIRMAN DRINKER: There are two or three other items that I want to call your attention to, and then I will be through.

One is that the respirators that we showed you yesterday afternoon are here on this desk and on display. I am sorry we cannot give any of them away to you, but they are there suitably tagged and labeled and we hope you will examine them.

The mimeographed outline on lead analyses are also available to you. Some of you got them yesterday, but many of you did not. If the doctors are interested or if they want us to mail copies to anybody, if they so indicate we will be glad to take care of it. There are some corrections on the outlines and we will take care of that.

We feel very strongly that it will be very much to the interest of the medical departments in the yards if we have occasional meetings in the various districts and perhaps out of the districts so that a man from the Gulf region will meet with somebody from the east coast or the west coast or the Great Lakes occasionally and simply swap information of a purely technical sort. Such meetings have been taking place successfully in the safety organizations and we know, everyone knows from his own experience in technical matters, that occasionally such meetings would be very profitable, and we propose to push them forward and do everything we can to see that such meetings take place, not too often but occasionally.

I do not think that requires any action by this group, but we shallnot let the thing drop.

The resolutions have been passed. We can then vote on the adoption of these standards with the corrections which we went over briefly first. We would like a motion on those standards with the corrections outlined added, and also the implications of these resolutions being appended.

Would anybody care to move that these standards be adopted?

DR. MC COY: I so move.

DR. RICKE: I second the motion.

(The motion was put to a vote and carried unanimously.)

CHAIRMAN BRIDGER: There was one other item that came up at an informal discussion. It is not our job to tell the Navy or the Maritime Commission how to build ships from a technical standpoint, but we can at least pose questions or suggestions, and one that was made yesterday was in regard to the reduction of lead paint prior to welding, and we will take steps in that direction.

Another suggestion has been made that we ask the Navy to eliminate what the Navy will admit is needless galvanizing, particularly in certain inside jobs, such as braces, angle brackets, and the like, that you can now see being galvanized for use in kitchens and so on, where there is no question of hard usage or no special corrosion problems from sea water. It would help us from the health standpoint and the reduction of chances of metal fume fever in welding jobs if unnecessary galvanizing were eliminated. Do any of you gentlemen have any views on it? If there is no objection from any of you, we will put that question and thought before the Navy for the operation of the purely Navy Contract Yards.

(Mr. Ring here assumed the Chair.)

CHAIRMAN RING: As far as the Medical Department is concerned, I want to congratulate them. This has been an awfully quick sort of a thing. We came here yesterday, none of us knowing all the rest of us who were here, and we put

B-2 our heads together and we sat down and we have done something. This is just a start. This is just like charting a course. You have not covered the journey yet at all. There are going to be obstacles and heartbreaks and discouragements as we go along; that is always the way where progress is involved. Thereare going to be times when we will want to consult with one another. Probably the most important thing will be, as far as the Medical Departments are concerned, to take in each area, say, about seven plants and formulate a little inter-plant interchange of views and have the medical men meet every month and possibly, if the time can be found, to visit a plant in that area once a month. The interchange of information in that way on an informal basis has been tried and found highly practical. It is strongly commended to you, that some deal like that be worked out, as far as the Medical Departments are concerned.

Now, there is another thing. When we lay these things down they are just scraps of paper until they are put into operation and execution.

We are not going to win this war, we are not going to make any progress by wishful thinking, and these things will remain in the realm of wishful thinking until we get out and do something about it. The first step is going to be the submission of them to the Maritime Commission and to the Navy, and if approval is obtained -- and I have every reason

F-3 to believe it will be -- then the promulgation of the same by the Maritime Commission and the Navy War Contractors, having the job of building ships for the two organizations. Once that is done we will have our advisors and consultants in the field. The job is yours. You have got to shoulder the responsibility of carrying these things out. You have sat down and put your minds together and said, "These are the things that must be done from the medical standpoint in these ship yards if we are to meet the war effort, if we are to take care of the man power problem."

Now, let us not fail or flag in our efforts. When we get back to the plants let us remember that we have behind us the collective opinion of the men best qualified in their respective lines as to what is needed to speed this war effort up, and to make the most use of the man power from the medical standpoint, and I am wondering whether or not we should not give some consideration to coming together again in another six months for a two or three day conference and finding out where the obstacles are that we have not been able to overcome, finding out where, if anywhere, these standards do not work out practically when we seek to apply them. There are going to be many cases such as that. We are going to have to be flexible at times. We are going to have to adapt ourselves. But I would like to have an expression from those here -- and I do not want it on the

B-4 basis of we are just going to come together and talk for the fun of it -- but I would like to know whether you think it is a practical and commonsense thing to try these out for six months and then get together again and put our heads together and find out how they are working out, how the inspection service and the consulting service is working out, whether you are getting enough help from the Government Offices that you need them from, and all of these things that go into the picture. I would like to have some expression from the floor on that.

DR. FLUKER: Make it only three months from now.

CHAIRMAN RING: Three months is suggested.

MR. WOODELL: May I ask how long it may take to have this adopted, if it is adopted by the Maritime Commission?

CHAIRMAN RING: It would be by the first of January, I hope.

Who thinks three months is no good? Stand up and yell.

Who thinks the idea is no good?

Let it be recorded there was stark silence.

MR. WOODELL: I think you better leave it that if after a period of three months you or someone else, in your opinion, thinks it is right, that we should have it. I think it is rather difficult to set a date at this moment.

CHAIRMAN RING: We won't set a date at the moment, but we will have it in the back of our minds that along about

B-6 three months from now we will get together and see how these things are functioning, if that is agreeable to all of you. I take it it is.

I want to express to you all here the very deep appreciation for the way you have done this job. It does something inside of me to see men come from all places all around and wholeheartedly and unselfishly devote themselves to promoting the interests of their country. I feel it very keenly, and I want you to know I feel it very keenly. I think that the type of spirit that is shown here is the surest guarantee and the realest insurance that there is nobody that will ever lick us, because when we do get our heads together and get going we throw all sense of self out of it. We attack a problem as a problem and we will put it across, and I thank you all very very much.

Now Jack Wolff has about another half hour that he would like to talk to you about things that he says everybody in the convention has been pressing him to talk about. Whether that is so or not, I do not know. I do not want to trespass on your indulgence to too great an extent. I think he has some ideas about the job of instructor training and supervisory conferences that he believes, and incidentally I believe, are very valuable.

Is there anybody here that would rather not hear Jack Wolff talk for a half an hour now, and who would rather

R-6 postpone the agony until, say, about two-thirty? Do you mind hearing him at 2:30?

(There were cries of "No".)

CHAIRMAN RING: We will then make it a special order of business at 2:30 after you have fortified yourselves with some internal vitamins.

In keeping with our general policy not to fatigue the mentalities of those who are engaged in intensive effort, I wonder if it would not be in order now to take a recess until two o'clock, when we hope that the safety men, who are supposed to be the practical ones here, will have finally come to an agreement upon their standards.

Is there any objection to recessing now until two o'clock? Hearing none, it is so ordered.

(Whereupon, a recess was taken until 2:00 o'clock p.m., December 8th, 1942.)

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Com.

AFTER RECESS

Tuesday, December 8, 1942,

2:00 o'clock p.m.

Mr. Daniel S. Ring, presiding.

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CHAIRMAN RING: Is the Safety Department ready to report on the minimum standards?

MR. ROCHE: The Safety Division is making its final report. Is it your pleasure that any additions which were made this morning be covered, or will you accept the report of the committee as complete? How many would like to have them covered?

I take it, then, that you will accept the report of the committee.

We have gone over this from 9.31 to the end; that is, from page 11 to page 18, and have made a number of additional suggestions which have been included. There have been some minor changes in wordings. There have been no major changes.

I make a motion, therefore, that the report of the Safety Committee be accepted.

(The motion was seconded, put to a vote and carried unanimously.)

MR. ROCHE: May I at this time thank all of you for your efforts, and your sincere work in correcting and formulating these minimum standards. I think they are going to do a good

job for the American shipbuilding industry in preventing accidents.

CHAIRMAN RING: I think Mr. Roche should thank you. In his palmiest days old Joe Cannon never railroaded anything through so smoothly. I don't know what is the matter with you. It was just a pig in a poke and you approved it. However, there was a very representative committee working on that, and I presume it will have to stand.

I have a few announcements to make. One is that I am obliged to absent myself until 3:00 o'clock, and before going I want to say to every one of you again how deeply I appreciate, on behalf of the American Maritime Commission and the Navy, all that every one here has done. I hope that in three months or so, when we get together again, we will find that what we have outlined as our course has been followed, and that the speed which has been prescribed, which is the maximum speed of which we all are capable, will have been achieved in all respects.

The second thing I want to say is — because there have been a number of requests — if it is the desire that anyone have a complete stenographic transcript of these minutes, you can make arrangements with the official stenographer for the same. That does not mean that the arrangements will be limited to simply ordering them. There are other requirements that will fall upon your shoulders. I suppose you get what I

Je mean. The question on reimbursable is excluded from this. I have not got my fiscal adviser here.

I want to say one other thing. We do not want to forget that the job of the Medical Department and Safety is basically a job of management. The Maritime Commission and the Navy are in this picture primarily to advise and consult with management with respect to those functions. Those functions, however, are responsibility of management, and you must not go away from here understanding anything other than that. It is your job to maintain the production at the highest possible peak through the proper medical attention that is to be given the men through taking the proper safety precautions. It is the job of the yards. We are going to be available to consult and advise with, as Mr. Roche so eloquently put it, if necessity forces our cooperation upon you. Now, that does not detract from the fact that basically it is not a Maritime Commission or the Navy's job to assume any management function. It is still operating on the basis that management has responsibilities and these too are part of those responsibilities.

I will again state that anyone who has not registered should register here.

Now, tonight in Washington there is a dinner being given by the American Museum of Safety, which you know has been the moving spirit in this, and a number of awards will be made. One of those awards will be made to Admiral Land, the head of

the Maritime Commission. It was with the full approval of Admiral Land that the conference was put into operation, and I would feel especially pleased if the conference could do me one favor before I have to leave, and that is to delegate me the authority to send a letter or a telegram, rather, to that meeting tonight, where it can be read, stating that the shipbuilding industry, as represented by the men who are concerned with the health and safety of shipyard workers, have adopted these minimum standards here and that we want to express at this time the appreciation, which I hope all of you feel, for the sincere and deep interest that Admiral Land has taken in the safety and health program, and to send to him our congratulations upon his receiving the safety medal.

Will anybody offer a motion to that effect?

MR. GRAHAM: I move to that effect.

(The motion was seconded, put to a vote and carried unanimously.)

CHAIRMAN RING: I think I can now safely turn this meeting over first to Jack Wolff, who will impose upon your indulgence and patience for about half an hour on job instruction training, and at the specific request of John Roche, who came to me and asked as a special favor that I accord him recognition before the meeting and make him the presiding officer to wind the whole thing up. Mr. Roche was very em-

of the show of the clothes to put on, and he wants to preside for the rest of the time. I hope you will be as kind to him as you were to me.

Now I am going to duck away, again repeating my very deep appreciation, and that is for everyone who has attended. Thank you all very much. (Applause.)

(Mr. Roche here assumed the chair.)

CHAIRMAN ROCHE: Until Jack Wolff gets here, we do have a problem. We are going to talk about clothes this afternoon. We are going to do better than talk about them; we are going to get visual instruction. We are going to see some live models brought here at great expense. There are some things that must be considered about women's clothing in shipyards.

I agree that in shipbuilding we have a very special problem, especially as it concerns women welders and women burners, as well as for other females in shipyards.

There are some questions we have to decide today, because I would like to inform these 159 manufacturers who have cooperated with us, of our findings on this point, concerning the fitting of women's garments, concerning the design, if you will, or styling perhaps is a better word, of these garments. For example, many women in shipyards are wearing men's overalls and trousers because they are not satisfied with the type of women's clothing they are able to get in

Ce may have something here today that will be suitable generally for wear. However, we talked yesterday about the difference in shape between a man and a woman. Very definitely manufacturers of clothing for women shipyard workers should be apprised of the fact that there is a difference between a man and a women in the way of physical construction, and that not only should the hips be made wider in comparison with the waist, but there are certain alterations that should be made at the shoulders and about the bust so that women are not exposed to the alleged funny remarks of some of the men in the shipyards.

We talked a little bit yesterday too about the fast die. I think very definitely we should call for fast dies in all working clothing for women, most particularly because women do shave under their arms, and because there is a definite need for what I think are called dressshields, either built into the garments or supplied in addition to the garments, to prevent possible dermatitis under the arms.

Some studies have been made of the so-called average woman. We have some figures available giving the length of women's legs, the various measurements that you take for a woman, and these should be made available, and I am sure we can get the figures from the manufacturers who have developed them. They should be made available from all manufacturers, so when we get standard garments, when you give a woman a

size 14, she should know that she is getting something that is going to fit her, because there is considerable difference between various manufacturers as to just exactly what size 14 is.

There are certain other points I would like to hear discussion from the floor on. For example, should women's overalls have cuffs; should she wear overalls; should she wear pants and jackets; should she wear trousers under the welder's leathers? If so, what kind? Is the ordinary slack advisable, or should she go out and purchase a pair of khaki or blue denim trousers? What materials are best suited for women's overalls? What kind of headwear should she wear, assuming, of course, where they are exposed to a falling object hazard that they wear hard hats? What kind of safety shoes should she wear? As you know, many women are now wearing men's safety shoes, and the reason may be she cannot get women's safety shoes in the territory she is located in, or maybe it is because they do not like the existing women's shoes.

Now, those are a few of the points that we would like some information on.

Let us first take up: Shall she or shall she not have cuffs on the trousers? What is your pleasure?

SEVERAL VOICES: They should not have.

CHAIRMAN ROCHE: They should not have cuffs on their trousers.

8e All right, then, it is definite that they should not have cuffs on their trousers. What is your pleasure; should they wear coveralls or two-piece garments, or should both be available, and why? We would like to have some volunteers. Mr. Anderson, how about you? Shall a woman wear two-piece garments, or shall they be coverall type, or both, and why? Are there any women in your yard?

MR. ANDERSON: Very few.

CHAIRMAN ROCHE: All right. Then you have no opinion on that. Who is going to volunteer an opinion?

MR. FRAZIER: In our yard the women wear both, but in our area, that is, in the immediate vicinity of Houston, it is found best to wear the coverall type. That particular garment has been found satisfactory and has proved itself as satisfactory, and the women in our yards wear the coverall type.

CHAIRMAN ROCHE: Does that also go for the welders and burners?

MR. FRAZIER: Yes.

MR. JONES: We have some two hundred women now and it seems to be the consensus of the women that the coverall type is most comfortable, and they seem to like it best.

CHAIRMAN ROCHE: Are there any other experiences on that?

Jack Haydon has dressed about sixteen hundred women, and he ought to have some idea.

MR. J. M. HAYDON: We started out with about sixteen

11e

Now, there are a couple of other points that have been brought up, and I would like to bring them to your attention, and perhaps we should make recommendations to the manufacturers.

In your opinion, is there any necessity for protection of the breasts of women in the work garment, and if so, should it be built into the garment, or should it be separate protection? That is a question that has arisen. As a matter of fact, Dr. Kuhn brought that up yesterday. Have you any opinion on that matter, especially the medical men who may be here.

DR. SESSIONS: I think they should be separate. I think that should be individual.

CHAIRMAN ROCHE: Do you think it is definitely needed?

DR. SESSIONS: It is in some cases, yes, but I do not think it should be built into the garment.

CHAIRMAN ROCHE: All right, separate protection, then. Has any other doctor here any opinion on that? How about the safety engineers?

MR. GRAHAM: Don't you think the medical adviser in charge of the yard should decide what they should wear; that it is an individual matter?

CHAIRMAN ROCHE: You mean in the way of protection?

DR. SESSIONS: That is right.

CHAIRMAN ROCHE: It is all right, but we first have to

12e make the material available, and it is not available now.

MR. GRAHAM: Then we should get to the point of deciding what material should be used, is that right?

CHAIRMAN ROCHE: Let us find out first if in the opinion of the medical men if protection is advisable and, if it is, let us take steps to see it is made available.

DR. ADAMS: We have not as yet very many women in our organization, but speaking in general, and from several years of general practice before I went into this particular phase of the game, the majority of the women in my opinion need protection. They do not need the style that is advertised in the magazines for the youngsters. They need the uplift type principally, that you find in a lot of the matrons brassieres that are on the market, and I do not think you are going to have provide special materials, because those are easily available.

CHAIRMAN ROCHE: In other words, it is not a question of padding; it is a question of uplift?

DR. ADAMS: Support, yes.

CHAIRMAN ROCHE: We have finished with that, and we will pass on to something else. You have seen a number of the garments, and you have seen the material, and obviously some of them are too light for shipyard work. What is your pleasure on that score; should we recommend the regular overall type cloth, which is called denim, or the type they build their

khaki trousers of?

MR. WOODELL: There has been a garment developed which is made of a sky blue cloth. It sells for considerably more than these, but apparently the girls seem to like them, and are willing to pay more for the material. They are water-proof, in a wool gabardine.

MR. STRIPLING: The denim cloth is without doubt the thing that fits our situation. As a rule that heavier cloth is not needed, and that denim cloth is the only thing that will stand the wear and tear. We have so many there that care so much more about their beauty that they are wearing snake skin — which is out of the question — that as soon as we get the denim it will be better for the production.

CHAIRMAN ROCHE: Up to now we have found that there is need for garments that are heavy enough to withstand the work. I think we can work that out with the manufacturers. They should be styled to fit the figure of a woman, cuffless, - and I presume that goes for sleeves as well as for trouser legs, - either two-piece or one-piece, depending upon the desires of the women herself, and the dress shields shall be supplied either separate or attached. Also, the dies used shall be fast.

Now, how about flame-proofing: for the burner's clothing and the welder's clothing? As you know, we have had several fatalities among men, but not among women, as far as I know,

as yet. Is it your opinion that the clothing of burners be flameproof?

DR. ADAMS: My personal opinion is very definitely that should be done in that way. Before I went with this present organization I had a man in a private industry that spilled mineral spirits over his trouser leg. Thirty minutes later he happened to do a little spot welding and a spark dropped over and ignited his trousers and he was laid up for about five months. Very definitely it should be flameproof.

CHAIRMAN ROCHE: Your suggestion is not only for the women but for the men too?

DR. ADAMS: Yes.

MR. TERRY: We have a regular process of having printed a booklet by craft of recommended clothing for women. Naturally, after we find out more things and get more information we will have to revise that book, but in that we have very definitely not recommended but said that women welders and burners must wear woolen garments and not cotton. We have recommended also that they wear a turtle neck sweater, which protects their neck and protects them from sparks going down their neck. We have found that works pretty well. But as far as the other part of the clothing, the fabric, is concerned, we concentrated more on having them in this kind of weather wear warm underwear, long underwear, long underwear preferably

MR. JONES: The hair of the women has concerned me quite

15c their hair?

CHAIRMAN ROCHE: I would like to keep that question reserved until we have finished with the body clothing. We will have that definitely in mind.

MR. H. E. PACKARD: I think if we do approve the two-piece job we should go on record about having the shirt tail on the inside of the trousers rather than having it hanging on the outside.

CHAIRMAN ROCHE: That is a very important point. It may sound silly, but I have seen that myself. Women are like these college boys. They run around with their shirt tails hanging out, where they have shirt tails, on these two-piece outfits. I do not know what we can do about it but recommend and try to enforce it.

MR. W. E. SPOFFORD: I would like to suggest that the question of temperature in various geographical sections be set up before any fixed rules be set on garments. In Superior right now we have it pretty close to zero and it may go to 40 below, and in Houston, Texas, you get 110 in the summer and probably not over 35 in the winter. I think that should be taken into consideration before this actually is determined.

CHAIRMAN ROCHE: That is an excellent point. However, we are not going to recommend types of garments or weights of garments, but we are going to recommend certain standards

to manufacturers.

DR. ADAMS: I agree with this gentleman. In fact, he almost took the words out of my mouth. I am from Tampa. This past summer we had three days where it was 101 in the shade. Of course, out in Texas it gets higher than that, and you certainly would not find many women running around with longies on in the summertime. So my suggestion is to adopt the uniform suggestions for these garments and have, possibly, two weights, a lighter weight for the southern climate and an overall weight for the general cooler climates, and then in extreme cold use your heavy undergarments.

CHAIRMAN ROCHE: That is very good. You may remember in the standards that we suggested that in the warmer area flameproof cotton might be found satisfactory in place of wool, and it has been in some places, so let us make that a part of our recommendation to manufacturers in the warmer areas.

Now, I notice in the Chicago Daily News today something which was said yesterday was reported seriously, and should have been. As you know, men are prone to fool around; we all do. It is the question of drop seats on women's overalls. We have had several cases where men have been guilty of dropping rivets down the top of the drop seats which are not fastened across the top, and I think we will agree some such construction is definitely needed, not only for the welders' overalls, but the welders' leathers. I think we should recommend to all

manufacturers where drop seats are provided that they be fastened across the belt, or some possible means of closing be made to prevent just such occurrences. Have you any opinion on that?

If there is no comment, we will let it go at that and suggest that positive closure means be provided.

I know these things seem silly to be talking about, but they are highly important. Accidents have happened because of them, and considerable time may be lost, where garments of the proper type are not being supplied.

Has anyone else anything they would like to suggest as necessary for the body clothing of the women? That is, the overalls? We are not worrying about the long underwear. They will wear that anyway if it is cold.

How about hats, or should there be any hats? Should women exposed to falling objects wear hard hats?

MR. KAYE: Definitely.

CHAIRMAN ROCHE: Should there be anything under the hat?

MR. KAYE: Bandannas.

CHAIRMAN ROCHE: Bandannas have been suggested to be wrapped closely around the head.

MR. JONES: Does that answer my question, just bandannas?

CHAIRMAN ROCHE: That has been done. We have several models of hats coming here, but they cannot be worn under hard hats. You fell-

19e means to wear a hard hat on a cold winter's day, so even the men in the colder climates wear something to protect their heads. Usually, not now, of course, but they used to wear a silk stocking cut off at the top and tied a little knot, and it did give considerable protection against the weather, but the women are principally concerned with keeping dirt out of their hair. We are concerned with that too, but we are also concerned with keeping women's hair out of the machinery and from being smashed. Now, bandannas are satisfactory, although a skull cap may be considered satisfactory. Have you any opinions on that matter? Nothing has been designed as yet, as far as I know. Are there any suggestions?

MR. STRIPLING: For welding there has been one designed. It is leather that comes down over the ears and over the back of the head, that fits underneath the hard hat. I think that is put out by the American Optical Company.

MR. PACKARD: I know we are just venturing into the female field as far as welders and burners are concerned, and a great share of our women are buying these railroad engineers' hats and wearing those underneath the hard hats, and that works very nicely, and it is big enough to hold up their hair, if they have too much, of course.

CHAIRMAN ROCHE: Did you all hear that? Mr. Packard said that out in his company they are buying railroad engineer hats and wearing those underneath the hard hats and they are

19e big enough to contain all the hair and give sufficient protection. That gives sufficient warmth. It does get a little chilly, you know, out in his section of the country once in a while.

MR. FRAZIER: Women in our yard have found satisfactory a net type which comes around and ties in front. It is like a bandanna, but it is not as bulky. They like it very much. We have very few women. I received samples of it when I was in Chicago and tried it out, and it is very inexpensive and costs 20 cents apiece, and is out of the way.

CHAIRMAN ROCHE: Does that settle the question of hats?

How about safety shoes; what have you got to say about women's safety shoes? I have noticed all over the country women are wearing men's safety shoes, for some reason. Most of them complain they bother their feet. What is your pleasure? Do any of you know anything wrong with them?

MR. KENDALL: Tell them to wear heavy socks.

4 CHAIRMAN ROCHE: Have you any comments to make on women's shoes that should be given to the manufacturers? Should they be the high type shoes or the type we exhibited over here?

MR. FRAZIER: As far as the shoes are concerned, perhaps they should not be the low type. That is all right for the ordinary work women, but for the welders they should have a ten-inch prong type boot made with a clasp across the instep to keep it on.

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CHAIRMAN ROCHE: The idea of the high boot is that welding sparks do not drop into the top of the shoe. If you have had that happen you know it is not a very nice experience.

MR. FRAZIER: The men in the Houston yard are using the spats, which are proving fairly successful, but the women do not like them. The ten-inch top boot is the best and by that you eliminate the lace type, in which the sparks lodge.

CHAIRMAN ROCHE: We have one suggestion, then, that instead of safety shoes we have safety boots. What is your opinion on these spats and shoes compared to boots? Does everybody think spats are satisfactory?

(There were several members of the audience who said, "No.")

CHAIRMAN ROCHE: As a matter of fact, I have heard considerable complaint about them. One point came up here yesterday. One of the men present talked about sparks. This goes not only for women, but for men too; and sparks frequently drop down into the gauntlet of the glove and they suffer a lot of burns, and it was suggested that we get some sort of a cuff inside the garment, a glove closed with elastic that would make a joint around the top of the welder's or burner's sleeve that would prevent that. Have any of them had burns of that sort? How many have had those cases? Raise your hand. I see one.

DR. RIEKE: Slight burns are very common the wrist, in-

le side the shoes, and in the ear canals. Those, in our experience, are the commonest of slag burns. They are happening every day, no matter what we are using, so far. So we are open to suggestions.

CHAIRMAN ROCHE: Dr. Adams, what do you think of that?

DR. ADAMS: I cannot say I have had enough welders as yet to get many of these superficial burns. The question has arisen in my vicinity, should we consider any recommendation as to short or long sleeves in these garments?

CHAIRMAN ROCHE: For welders, of course, you would have.

DR. ADAMS: For welders, yes, but try and get the women to cooperate. After they get burned a few times, yes, they will. I have had a number of spark burns in the ear, but not at the wrist.

CHAIRMAN ROCHE: How are you protecting the ears?

DR. ADAMS: There is no protection I know of but a little piece of cotton.

CHAIRMAN ROCHE: Is anybody using ear plugs here? I see three people who use ear plugs.

DR. SPENCER: It is a dangerous procedure.

CHAIRMAN ROCHE: Do you want to comment on that?

DR. SPENCER: To plug up the ears simply means you have an incubator for disease germs and any tendency to infection is exaggerated. It is a very unsafe practice to plug the ears with anything.

12e DR. RIEKE: I will agree perhaps it is unsafe to plug the ears with anything, except it is a lot worse to have a lot of hot slag burn the ear drum out. I raise that point advisedly because we have now seen actually hundreds of cases of burns in the external ear canal and burns of the ear drum. Many men said if we put cotton in the ears the slag is apt to set fire to it. So far we have not encountered that. The welders simply do not take advantage of any protective measure for the ear canal until they have trouble, after which they use cotton in the ear canal which they themselves apply. As far as the infectional danger is concerned, in the ordinary ear canal, I think I myself might go on record as not being alarmed about that as much as I would about the danger of hot slag in the ear canal.

I might point out another reason for complete coverage of the arms and legs for welders. You all know of arc flash in the eyes, and I think you all have seen arc flash burns of the skin. The arc flash and the ultra violet and infra red rays do cause quite a severe burn of the exposed skin, particularly on the legs, of welders who weld in a squatting position. It can cause a deep burn which takes some two weeks to begin to heal. So do not be too surprised as your welders come into your yards to see that accident happening. It is a thing which is, of course, avoidable with complete coverage, either by cloth or leather.

23e CHAIRMAN ROCHE: Thank you very much, Dr. Rieke. I think that is very good.

DR. SPENCER: I am talking about something I do not know much about now, and I ought not to talk about it, but why can't we conceive of something of an ear muff made out of screen wire? These burns in the ear canal are very painful and disabling. I do not know whether that is practical or not, but it ought to be explored if it is practical.

CHAIRMAN ROCHE: It is used in foundries.

MR. WALL: I think the main thing the safety engineers have to contend with on that is stopping the person from hearing. We have, I know, several cases. I have been standing around the ways, and sometimes one person can holler at another and get him out of the way of a load of something that is falling off. If you stop up the ears he can hear no signals. I agree with Dr. Spencer that if we could arrive at some screen type where the sound can go through, or a muff, or I think it is the thing for us to do.

MR. FRAZIER: There is a screen wire muff on the market in use, and also this plug in the ears. It may be new to you, but it is not to us. In Texas there is a small company which manufactures a plug out of felt. They were at Beaumont, but they have now moved to San Antonio. I have tried out quite a few dozens of their product and it is very satisfactory for the welders and for some of the others that

guns.

MR. DESJARDINS: I just want to say that Navy does make available ear defenders for those who care to wear them. As far as the hearing qualities are concerned, you can hear with them.

CHAIRMAN ROCHE: The National Safety Contest, which we spoke about yesterday, will be inaugurated between all shipyards in the country. Yards will be classed according to type of work and size. Now, there are available on the piano here about one hundred copies of the rules for this contest. Please take only one of them, and you will hear more about it in the near future.

All of you will receive from now on a copy of the Victory Fleet issued weekly. The Victory Fleet will carry articles on safety of general interest to the shipbuilding industry, spot news, cartoons, and so on. Copies will be available to all of you and if anybody wants more than one copy, please let us know and we will see that you get it.

MR. JACK WOLFF: (Supervisor of Shipyard Training, Division Shipyard Labor Relations, U. S. Maritime Commission, Washington, D. C.) We spoke yesterday about the use of the training departments in helping the safety and health departments get safety and health training over to the men in the organizations.

a J.I.T. session, a job instruction training session? Roughly fifteen per cent, ten or fifteen per cent.

How many of you having gone through it have actually used it in safety work?

(Some of the members in the audience raised their hands.)

What has been your experience?

MR. STRIPLING: Very good.

MR. WOLFF: In what way?

MR. STRIPLING: In getting your idea over it is more effective. The training you get in the J.I.T. course gives you a better idea as to how you get your idea over to the man. The four little factors that are predominant in that particular training give you a better lift with the man.

MR. WOLFF: You feel it has done a good deal to disseminate safety procedures to the men out in the yard, is that right?

MR. STRIPLING: That is right. I have used that same thing in safety engineering courses also.

MR. WOLFF: Those of you who have used the job instructor training in safety work, in seeing that safety operations were included with job training, will see that it makes as much difference in getting it out as though you were driving a spike with your hand or using a hammer to drive it with.

MR. HOGGAN: We are putting through the J.I.T. about

two thousand foremen at the present time.

MR. WOLFF: Did you hit particularly on safety?

MR. HOGGAN: On safety.

MR. WOLFF: There is no question that those who have used instructor training in shipyards find from their experience that the safety departments who are failing to use it are missing the big bet.

You know, it was just a couple of years ago, in considering shipyards, that a firm that had two or three hundred employees was considered a fairly large firm. A firm that had a dozen or more foremen, well, that was already a sizable firm. But today we are dealing with shipyards that have five and ten and fifteen, twenty-five and thirty thousand and more employees in one organization, and frequently with shipyards that have in adjacent organizations sixty, seventy or eighty thousand employees. Therefore, regardless of how well something is planned, regardless of how much management is behind it, regardless of how much or how well the safety department is organized, unless we utilize something that will distribute these things on a wholesale basis, we just do not get the value out of it.

The remark was made yesterday by a safety engineer that he had seen several job instructor training groups at work, and he had not seen a thing in those job instructor training ------ that was devoted specifically to safety procedures.

Well, that was his fault. He should have been in there pitching. In other words, he was overlooking a bet. If he did not correct it immediately, he was not living up to his own possibilities in making that yard safer.

There are various forces to which you can turn to get the help of job instructor training in your yards. If you have a training department in your yard which is using it — and that is one of our endeavors now, particularly in the maritime yards, and I am sure it is in the navy contract yards too — to see that job instructor training is utilized with all supervisors and with all men and with all mechanics, you should see that all those men pass on the "know how" as to how to do a job to some one else.

There is another method which safety engineers have utilized, and perhaps the men who are responsible for the health in shipyards can utilize that as well, - in fact they can, - and that is the supervisory, the real supervisory production conferences. Now, that does not mean a conference in which we tell a supervisory how to be a good supervisor. It does not mean that it is called a conference, and yet somebody stands up there and lectures to a group of supervisors. It does not mean that it is called a conference but what we are doing is show some pictures and then the pictures tell the supervisory how to be a good supervisory. It means a conference in which the experience and the intelligence of

Se those supervisors is utilized in working out a short cut to increase production. That is exactly what it means.

My home happens to be in San Francisco. Last October a Chinese friend of mine, who has been a very intimate friend for twenty-five years -- he is a merchant there in San Francisco in Chinatown — had my wife and myself and some friends at his place for a banquet. After the banquet he took us around to their family meeting place. —

Now, in San Francisco each one of those Chinese families has a meeting place. By family, I mean all the cousins and all the brothers and uncles and nephews. They are all part of the family group. For instance, if Jack Wolff happens to get into some trouble, I do not try to figure out my own way out of the trouble myself. I call the family together, and all my uncles and nephews and brothers and cousins sit around the table and they help me figure the best way of getting out of my jam. That is the way they work it, and it is pretty successful, too.

When we got in this room and looked it over we discovered that it was a luxurious spot. It had chairs all around the walls made of black ebony or teakwood, whatever it was, but each one was beautifully carved, and was something that you would love to have in your own home. They had them in there by half a hundred or more. Between every two of those chairs they had a vase, a rare Canton China vase, which is very

The beautiful, and any one of your wives or the ladies here would have given their eye teeth to have one of these for flower arrangements, but they were cuspidors at this meeting place, one between each of the two chairs. Near the door was a Chinese tea cozy, and along the Chinese tea cozy was a bowl half filled with three Chinese cups, the kind with no handles. They were nested in that bowl.

I have been in China, and I have a number of Chinese friends, and I have learned that the Chinese do not do anything just for fun, so I said to Chan Yen, "Chan, what is the idea? Why do you have those three cups nested in that way here alongside this tea cozy?"

"Well, Jack," he said, "we always have that wherever there is a meeting place at which Chinese meet to do something, to accomplish something." He said, "These three cups you will always find in that way so that we will never forget that Confucius once said, 'Where three people get together each one is a teacher.'"

Now, he did not say when three presidents get together each one is a teacher, or three grandfathers. He said, "When three people get together each one is a teacher."

That is what we utilize in production conferences, this one thing which Confucius discovered several centuries ago; that whenever three people get together each one is a teacher.

De tell supervisors how to become a better supervisor, but we do use those production conferences to utilize that ability of the supervisor, each supervisor, to contribute something to the solution of a problem which is holding up production, and as he gets practice involving problems that are holding up production, does he become a better supervisor? He does, doesn't he? He learns to swim by being in the water and swimming.

Now, one of the things about that is that there is a method which can be used that will help to insure this. One of the things is to have three columns, the first column being the objective; in other words, the training that we want to accomplish or to have accomplished.

The next thing is the column that is devoted to obstacles, the thing that keeps us from doing it.

The third column is for solutions, which means the method that we use in overcoming those obstacles.

Now, this particular thing is a method in which any supervisor who is already an effective supervisor finds himself right at home, because any time a supervisor is given a job to do, that is his objective. The very thing he does is to check that job over to see what he is up against. Does that check? He has got to find out what he is up against, and then he works out a method of getting around each one of those obstacles. So this is regular production procedure.

9e and we were saying that we would not have any more than that, but we ended up with about sixteen hundred.

We followed out the example of using the coverall, because they had more freedom in their arms. We recommended underneath the coverall a sweatshirt that would keep them from getting cold, because it is very drafty on board ship, and the women are always working aboard ship. They are using slacks underneath the coveralls, if they have them, which works out pretty well.

I am not getting up here to tell you how to dress sixteen hundred women, but the fact is that those we have got are using at the present time something heavier than that in this coverall shape, and it does away with Mr. Roche's idea of pulling up their pants all the time, because they do not have to.

The safety shoe problem came up, and they found the smallest of the safety shoes was entirely too heavy, and they shied away from them. Finally they were buying boys' shoes with the heavy soles and high heels; that is, the medium size heels, and not having any information from headquarters on how to dress them, we had to use our own methods and let them pick them out, and I believe the women should be consulted, our women supervisors, and the dean of women in the yards should have something to say about how they should dress, because after all you do not want them to look like a man, even if

they are working with men in the yards. We have found out that if we let them have something to say about it, we have a pretty good average of what they should wear to protect themselves when working in the yard.

CHAIRMAN ROCHE: Thank you very much, Mr. Haydon. That adds quite a lot to the discussion. I agree with Mr. Haydon that you should keep in touch with the women. The women will object, naturally, to having men invade their field and tell them how to dress.

I do not think we can talk about styling as such. In other words, what do we care about what garment may be, although, as has been suggested, blue and khaki are acceptable colors. In aircraft factories, munition plants and machine shops, and so on, there is considerable styling and there is some color worked into these women's garments.

For example, a little while later you will see some garments that were styled by a nationally known figure, Lily Daché, which were styled for a specific company and sold to the women on that basis, because they were designed by a nationally known stylist.

I do not think we will have that problem in the shipyards, because if there is any style in a shipyard work garment, the first time a woman goes into the tanks, or lays down on any of the places to do their welding, the style is going to be practically ruined.

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It is not something which takes him away from it, which is a class room affair or a school room affair. It is the same thing he does on his job.

So far as safety is concerned, suppose you were to set up an objective such as this, to cut down lost time accidents by 90 per cent; would that be a reasonable objective for a group of supervisors to consider? Does the percentage seem a little high?

MR. JONES: Cut it in half. Sixty would be swell.

MR. WOLFF: All right, let us make it sixty, then. Even if you make it sixty you would find people who can't do it. There will be a lot in that group who will say, "You can't do that, because"— well, this is the "because" column. These are the reasons here, why you can't cut down those accidents by 60 per cent.

Then after your supervisors have listed down all the reasons why they cannot cut accidents by 60 per cent, then those same supervisors, - not you, the safety men, - but the supervisors themselves figure out methods by which they can get around each one of those reasons, and when they are through the safety engineer has run into a bunch of things which perhaps he himself was overlooking, and each one of those men have become safety conscious and are really thinking safety, because they have considered the obstacles that they are up against.

Now, here is one of the objectives of a good safety man: He wants his men, the men in his yard, to think safety. In fact, you want your supervisors to think health too, don't you? Well, will you do it by just putting up a sign which just says, "Think"? Will that accomplish it? You just hang up a sign in front of them that says, "Think, Damn You, Think." That is what we tell them, in effect. That is the same sign we find in the I.B.M. rooms, that sign that says, "Think," after they take away all the stimulation to thought by having a machine which does it all.

Would you say if you follow this procedure by getting together first on an objective that everyone there says is a reasonable objective to strive for, then by having them outline the obstacles which they say would prevent them from reaching this objective, and these obstacles will then stimulate their thinking so they will attempt to work out a solution for each obstacle, - do you believe that that will stimulate their thinking along safety lines or health lines, if your objective happens to be one on health?

In Savannah, Georgia, at the Southeastern Shipbuilding Corporation, a couple of months ago there was such a conference. I would like to ask Mr. Jones of Southeastern if he will give his reactions to one that he saw in operation.

MR. JONES: When Jack presented this problem, or solution, rather, to me, I said, "Show me." He said, "O.K., I

He will." So I felt, well, this is a chance to throw a monkey wrench in the machinery.

I went out into the yard and picked about twelve or fourteen of the most cantankerous lead men and foremen that I knew of and called them in for this conference, and believe it or not, I think that those fourteen right now are the most safety-minded lead men and foremen that I have in my yard, and if I could conduct it there, and I hope I can and I hope you all can too, with the same zeal and enthusiasm that Jack does, it is wonderful. You may believe it or not, but it did work in my yard with the most cantankerous and objectionable foremen and lead men that I had. The results have been very gratifying.

MR. WOLFF: That is all I have to say, because this is just being presented. The same thing is being presented to the training men in all maritime yards. It has been presented to most of them already. We will gradually get something like that swinging, and if you feel that it has some value to you in the extension of safety practices and healthful practices in the yards, I am sure that the training departments will be only too glad to cooperate with you in every way to put any of their training facilities at your disposal.

Thank you very much. (Applause.)

Are there any questions? You know a good conference leader never does the work. He always has somebody else do

34e it. Are there any questions?

MR. CONLON: I would like to have you clarify your distinction between a training program and your supervisors. Is the training program that you speak of included in new employees coming in, or how is it done?

MR. WOLFF: That is a good point. The purpose of this job instructor training program is to help a supervisor become a better instructor of the green man who is coming in, because today nine-tenths of the supervisor's responsibility is training. Previously it used to be about perhaps ten per cent training and ninety per cent administrative, but today it is the other way around.

Now, there are two things, two ways in which safety for the beginner can be gotten over effectively, - with the cooperation, particularly, of the training departments and the safety departments. First, they have induction programs in which the new workers come into the yard and are given some pre-production training, getting the yard layout and explaining, perhaps, some of the hazards which he will run up against. They will tell him where to go for this and where to go for that, how to check in and how to check out, and whom to see if he has to be absent from his work for any length of time, or whom to go to if he needs some information beyond the information he can get from the men he is working alongside of.

35e working on the job. Let us say that a welder has gone through school and learned how to hold an arc. In many yards an instructor follows that man out on the job when that welder is working alone on the platen or assembly platform, and the instructor is right alongside for perhaps each ten welders or trainers who are working. There again he has the opportunity of bringing out safety as well as technique, the welding technique itself.

So, in fact, it is not only the supervisors. In fact, we have two distinct things; first is the training of the individual to increase his skill so his individual production will go up to the highest point; that is where safety comes in; and the second is the development of the supervisor so he will most completely utilize, organize and utilize, that individual's skill so as to increase the production of the ships.

MR. DALZELL: I have a question I have had on mind since we came here. It does not pertain to training at all.

We find most of our flashes come at the rush period just before luncheon, when we have a lot of welders working up in the fore peak and in the after peak. We put goggles on the men, and everything, and yet we find that maybe 50 per cent of them are sent home with flashes. I would like to know if any of you gentlemen have any suggestions on how to stop that? What I am referring to, you will find — as I imagine youall do — down in the fore peak maybe you will have about twenty

36e or twenty-five welders at work, close together. On the outside of the seams, just ahead of your master butt, you have got on each seam maybe two or three men, one putting in a first beat, a second beat, and finishing off. One man might stop, and the next man gets the flash, the man right next to him gets the flash.

MR. WOLFF: Are there any suggestions on that?

MR. PACKARD: Mr. Chairman, the way we have successfully handled that, in most cases, is by putting flash goggles on the welders and cutting down the shade on the operator, on the hood, and putting on flash goggles on the men.

MR. DALZELL: We have flashes where the men have goggles on and everything. It seems it leaks in through the side.

MR. WOLFF: There still may be some training needed here. Are there any further questions?

If not, I will turn the meeting over to Mr. Roche.

CHAIRMAN ROCHE: The girls who are now going to model for you were furnished us through the courtesy of Lou Holtz, from the show "Priorities of 1942" at the Erlanger Theater.

We are going to show you how some shipyard girls look when they come to work, and some who are more or less correctly attired for work.

(Here followed a style show, displaying the various types of garments to be used in the shipyards.)

CHAIRMAN ROCHE: Is there any further business which any-

7e one wishes to take up at this time before the final closing of this first industrial health and safety conference?

MR. PACKARD: Mr. Chairman, there is one thing that has been bothering us a lot in the various shipyards. After we have worked very hard in finding good assistants, by the time we get them broken in to our ways of doing business, along comes the draft boards and threatens to take them. I wonder if there is anything this group could do in order to try to help save these men? After all, our job is to try to keep men in industry, and if our men, the men that are doing that job, are constantly taken out of industry, we are going to have a pretty tough time trying to keep up the program. It seems to me that is one of the most vital things we have to contend with. We can draft all the rules and regulations there are, but if we have not an enforcement and checking group, we cannot possibly do anything with those rules we have formulated.

MR. BECK: I believe that Mr. Packard's question is answered in the proceedings of the Manpower Commission. I think safety engineers have been classified as essential occupations. I know they are considering today that very problem with casualty insurance companies.

CHAIRMAN ROCHE: That is a very good point. That point was made some time ago. As a matter of fact, local draft boards did not pay much attention to it. However, under the new war manpower set-up, with Paul McNutt given the authority

to put men into industry or military service, as he sees fit, I think we will have less and less trouble in holding essential men.

MR. PACKARD: I have had two or three men taken out from under me, and I have another one that has a very good chance of going, even though he may be married. I know I am not the only one. I am speaking probably selfishly, but I am speaking for other people here. We have a local group that meets once a month and this has been a topic of conversation, and we are frankly worried about it, and we do not know what to do.

CHAIRMAN ROCHE: I really believe your troubles in that connection will be lessened under this new war manpower setup. I do not know what good a resolution on our part would do. It looks like being stuck on a sandbar and passing a resolution to get eight feet of water under the keel. You could pass a resolution but nobody would listen to it.

MR. SPOFFORD: At a meeting of the War Manpower Board in Chicago several days ago we were told by a representative of General Hershey's office that the only way to get deferment for key men if they had been inducted by the local draft board is to make a list of your key men, justify their importance and go before the state chairman of the draft board and if that chairman approves the deferment of these men it will be recognized by General Hersey's office and all other

39e state boards in the United States.

CHAIRMAN ROCHE: Is there anything else anyone wishes to bring up at this time?

You can get copies of the complete proceeding by ordering them from the young lady at the Stenotype machine. There will be some charge for that.

The revised standards as revised by this conference will be available, both the health and safety, in a very short time, and a sufficient number of copies will be put in your hands.

We hope to be able to get together on this health and safety program immediately after the first of the year.

I want to thank you on behalf of the Maritime Commission, and particularly on the part of Mr. Ring, Dr. Drinker and myself, for the very close and careful attention and for all you have done in making this conference the real success it has been. Thank you and Godspeed.

(The meeting adjourned.)