

INTERNATIONAL LEAD ZINC RESEARCH ORGANIZATION, INC.

MINUTES OF MEETING

of the

EXECUTIVE COMMITTEE

February 18, 1971

By direction of the President, Mr. C. Osborne Buchanan, and in accordance with notice of January 7, 1971, a meeting of the executive committee of the International Lead Zinc Research Organization, Inc., a New York Membership Corporation, was convened at the Corporation's offices, 292 Madison Avenue, New York, New York at 10:15 a.m., February 18, 1971. The following members were present:

James R. Alexander
C. Osborne Buchanan
Max I. Freeman
Albert F. H. Ghysens

being four of the seven members of the committee and constituting a quorum under Section 6.01 of the By-Laws. Also present by invitation were Schrade F. Radtke, Executive Vice President and Director of Research, William J. Veenis, Corporate Treasurer, Dodd S. Carr, Corporate Secretary, and Mrs. Margaret J. Carpenter, Assistant Corporate Treasurer.

Mr. Buchanan served as chairman of the meeting and Dr. Carr served as secretary and kept the minutes.

Report of Membership Drive

Mr. Buchanan reported that he and Dr. Radtke had visited Europe during the latter part of January and early February, 1971 to call upon potential new members of ILZRO, including a specific invitation to Trepca Lead and Zinc Mines & Refineries in Mitrovica, Yugoslavia. In general the visit was successful and many top people were seen in the

various companies visited as described below.

Paris - The Zn 75 presentation at the Peugeot works was attended by Messrs. Buchanan and Radtke, including a luncheon with people from the Peugeot Design Institute. A two hour discussion followed and the technical material requested by Peugeot was forwarded from the ILZRO office. Later, a cocktail party was held in Paris for French Government Officials under the sponsorship of Mr. Claude A. Wahl of the Centre Technique du Zinc. Also, while in Paris Messrs. Buchanan and Radtke visited the Auby Plant of Compagnie Royale Asturienne des Mines and discussed the ILZRO research project being conducted there. Mr. Buchanan reported that the French Highway Department was grateful for ILZRO's assistance in saving one of their cable suspension bridges from collapse due to corrosion of the cables.

Rome - Mr. Buchanan reported that he and Dr. Radtke visited the A.M.M.I. S.p.A. group in Rome and discussed problems relating to the zinc industry in Italy. Many of the people at A.M.M.I. were formerly employees of Monteponi & Montevecchio S.p.A. (an ILZRO member company). Mr. Buchanan stated that, hopefully, the A.M.M.I. group will become an ILZRO member in the future. He also reported that the Zn 75 car is being stored in Torino, Italy under the care of Dr. Giovanni Scacciati, awaiting a possible showing to the Fiat Automobile Company.

Belgrade - Mr. Buchanan said that he was favorably impressed with the facilities, services, and fluency in English of the employees at the hotel where he and Dr. Radtke met with Mr. Gligorije Stankovic of Trepca Lead and Zinc Mines & Refineries, Mitrovica, Yugoslavia. Mr. Buchanan pointed out to Mr. Stankovic that his company, Hudson Bay Mining & Smelting Co. Ltd., obtained a better return on its research expenditures through the cooperative ILZRO program than would be possible independently. Mr. Stankovic replied that his company, Trepca,

would prefer to support only the zinc research programs of ILZRO, instead of the lead research program, but Mr. Buchanan replied that they must join ILZRO under both metals (lead and zinc) as required by the ILZRO By-Laws. He emphasized to Mr. Stankovic the importance of the new battery and electric car research programs being conducted by ILZRO as future market potentials for lead.

Mr. Ghysens expressed concern about the transfer of ILZRO data to Yugoslavia since it might be spread to all of the iron curtain countries without receipt of any research contributions in lead. Mr. Freeman reported that Rio Tinto has granted several process licenses to Polish firms and no wrongful disclosures of information have been evident. Mr. Buchanan said that he had called Mr. John R. Englehorn at St. Joe Minerals Corporation and arranged for a visit by the Yugoslavian representatives to America to show them how important lead research is to St. Joe Minerals Corporation. Mr. Alexander stated that the New Jersey Zinc Company had no objections to future membership in ILZRO of the Yugoslavian company (Trepca Lead and Zinc Mines & Refineries). Mr. Freeman also expressed his approval of the acceptance of Trepca Lead and Zinc Mines & Refineries as a future ILZRO member.

Upon motion duly made and seconded, it was unanimously:

RESOLVED, That ILZRO membership be offered to Trepca Lead and Zinc Mines & Refineries, Mitrovica, Yugoslavia.

Mr. Buchanan stated that he will offer ILZRO membership to Trepca on the basis of their support of both lead and zinc research programs and, if they accept, Mr. Buchanan will poll the ILZRO directors by letter ballot. Mr. Freeman asked Mr. Buchanan to stress the importance of maintaining the confidentiality of the ILZRO research results by Trepca and suggested that Mr. Buchanan include in his letter to

Mr. Stankovic a statement of the importance of the ILZRO lead research program.

Frankfurt - Mr. Buchanan reported that he and Dr. Radtke visited Doctors Helmut Ley and Walter Sies at the Metallgesellschaft AG to discuss possible ILZRO membership. Apparently, the ILZRO story had never been presented properly to the executives of Metallgesellschaft in the past. After hearing the ILZRO presentation by Dr. Radtke, Dr. Ley mentioned that he was scheduled to give a technical paper in Hamburg on the competitive position of zinc versus plastics. Thereupon, Dr. Radtke gave him a copy of the ILZRO project report on zinc versus plastics and Dr. Ley incorporated almost all of the ILZRO information in his proposed talk. Both Doctors Ley and Sies said that they were in favor of joining ILZRO but that such membership was being blocked by a Mr. Schlichterman, who is expected to retire from Metallgesellschaft AG in about two years. They also said that they would join ILZRO immediately if Preussag AG became an ILZRO member. Mr. Buchanan said that he and Dr. Radtke were invited to remain for a Metallgesellschaft AG luncheon meeting which gave them an opportunity to discuss ILZRO activities further. Also, Mr. Buchanan and Dr. Radtke visited with Dr. J. Greven of Lurgi Gesellschaft für Chemie und Hüttenwesen MGH, a division of Metallgesellschaft AG.

Mr. Buchanan reported that Dr. Dietrich Ernst, of Preussag AG was away from his office and, therefore, it was not possible for him and Dr. Radtke to visit Preussag at that time.

Stockholm - Mr. Buchanan stated that due to an emergency at his plant it was necessary for him to return to Canada prior to the Stockholm visit by Dr. Radtke to Boliden Aktiebolag Company. He reported that Dr. Radtke met with Messrs. A. Palm (President), M. Blomkvist (Technical Director), and T. E. Jensfelt of Boliden Aktiebolag. They told Dr. Radtke that they would let him know in about one month of their decision about

joining ILZRO. Mr. Buchanan reported that he had a meeting with Mr. Jensfelt in Toronto following Dr. Radtke's visit in Stockholm.

London - Mr. Buchanan reported that Dr. Radtke visited Mr. A. G. Moncrieff and Mr. Noakes at Consolidated Gold Fields Ltd. to discuss potential ILZRO membership of Gold Fields of South Africa Ltd. Dr. Radtke pointed out that a membership in ILZRO might be taken out in the name of Consolidated Gold Fields Ltd. inasmuch as they have a zinc smelting operation. Mr. Buchanan felt that Consolidated Gold Fields Ltd. may be a potential new ILZRO member, since their subsidiary, American Zinc Company, will be going out of the zinc business.

Brussels - Mr. Buchanan said that Dr. Radtke visited Mr. Jean Verdussen, President Administrateur Delege de la Societe Metallurgique du Katanga regarding potential ILZRO membership. Mr. Verdussen pointed out that there was a difficult problem in the Congo with foreign currency exchange since the government would be suspicious that ILZRO membership might be a ruse to get capital out of the country. Dr. Radtke offered to assist Mr. Verdussen in any way possible to assure the Congolese government that ILZRO could contribute substantially to the development of markets for the zinc produced in Africa.

Mr. Buchanan felt that his trip to Europe with Dr. Radtke was very encouraging with regard to obtaining new ILZRO members, especially Metallgesellschaft AG, Preussag AG, and Boliden Aktiebolag. He will proceed to write to Mr. G. Stankovic at Trepca Lead and Zinc Mines & Refineries, offering ILZRO membership based upon support of both lead and zinc research programs, and will poll the directors if a favorable response is received.

Report of ILZRO Treasurer

Mr. William J. Veenis, Corporate Treasurer, presented an expanded preliminary financial report of ILZRO for the year 1970 and pointed out that the report was subject to audit. He reported that total 1970 receipts amounted to \$1,943,000, that actual 1970 expenditures totalled \$1,879,614, and that the reserves in the lead and zinc funds on January 1, 1971 amounted to \$288,921.

Mr. Veenis also presented a report of the Treasurer for the month ended January 31, 1971.

Dr. Radtke reported that a cash flow projection summary is being maintained by Mrs. Margaret J. Carpenter, Assistant Corporate Treasurer, to provide a closer financial control of the ILZRO management and operations budget. He also thanked Mr. J. R. Alexander for suggesting that Mrs. Carpenter assume the duties of Manager of Administration, in addition to her Treasurer functions, since this permitted the hiring of a very competent Accountant to assist Mrs. Carpenter without increasing the ILZRO budget.

Mr. J. R. Alexander suggested that future ILZRO assessments be based upon actual production figures through September 30th each year, similar to the procedure employed by the Zinc Institute, Inc., so that ILZRO could establish a definite budget for each ensuing year. Mr. Max I. Freeman agreed with this suggestion.

Upon motion duly made and seconded, it was unanimously:

RESOLVED, That the base period for reporting actual tonnages will be changed to October 1st of a given year to September 30th of the following year, as the basis for computing ILZRO assessments.

Accordingly, Mr. William J. Veenis agreed to poll the member representatives in the near future regarding the proposed change in base

period for reporting production tonnages, starting with the period October 1970 to September 30, 1971. At the same time, he will inform them of the necessity for submitting their five month actual production figures so that ILZRO can estimate by June 1, 1971, the estimated 1971 production tonnages.

Mr. Veenis also reported that several ILZRO member companies have already indicated their intention to change their basis of assessment in accordance with the decisions made at the 1969 Annual Meeting in Rome regarding alternative bases for dues allocations, (Integrated Basis versus Differentiated Basis). Therefore, he will write to each member representative in the near future and ask them to declare now the basis of assessment they expect to use in 1971 so that the impact on 1972 ILZRO funding can be determined. This matter will be reviewed with Mrs. Margaret J. Carpenter and Mr. Frederick R. Jeffrey prior to writing to the ILZRO membership representatives.

Revision of ILZRO Committee Structure

Mr. C. Osborne Buchanan reported that a number of ILZRO members have suggested changes in the ILZRO committee structures aimed at streamlining their operations. One of the main areas of objection was the operation of the ILZRO Program Review Committees. In recent years, some ILZRO companies have sent up to 5 representatives to such meetings and many of the technical aspects of the research programs were discussed, rather than limiting the meeting to consideration of the market potentials for the various research projects. Dr. Radtke stated that 85 people attended the 1970 Zinc Program Review Committee Meeting and commented that there were entirely too many people present to reach sound decisions efficiently.

Dr. Radtke then reviewed the origin of the various ILZRO committees, starting with 43 technical subcommittees, 2 technical steer-

ing committees, and 2 industry development committees. He said that the 43 technical subcommittees and 2 technical steering committees were combined into 6 technical subcommittees (3 zinc plus 3 lead committees), and that the 2 industry development committees evolved into the lead and zinc program review committees.

It was recommended that the program review committees be limited to 1 representative per company, making a total of 34 representatives, preferably senior marketing personnel.

Upon motion duly made and seconded, it was unanimously:

RESOLVED, That the ILZRO Program Review Committees be limited to one representative per member company, preferably a senior marketing executive.

Mr. C. Osborne Buchanan agreed to send a letter to each of the ILZRO member representatives advising them of the action taken by the Executive Committee to limit the Program Review Committees to 1 representative per ILZRO member company.

Mr. James R. Alexander reported that The New Jersey Zinc Company objected to the large number of ILZRO technical committees. Dr. Radtke replied that the attendance at the ILZRO technical committees by associate members, representing lead and zinc consuming industries, represented a wonderful opportunity to communicate the needs for research in such industries. He pointed out that the ILZRO technical committees have recently met only once a year because of budget limitations (to reduce costs of meeting and to avoid consideration of programs for which research funds would not be available). Mr. Veenis suggested, based upon his discussions with Mr. C. F. de Armond, that one ILZRO committee member be held responsible for monitoring the progress of 3 or 4 ILZRO research projects and for reporting back to the ILZRO technical committees.

Mr. James R. Alexander reported that The New Jersey Zinc Company felt that most of the ILZRO research projects originated from the technical

committees rather than from the marketing committees (Program Review Committees). He offered to prepare a proposal for streamlining the ILZRO committee functions for consideration at the next meeting of the ILZRO Board of Directors. He acknowledged that ILZRO must retain its present committee structure during 1971.

Mr. Max I. Freeman suggested that the ILZRO Program Review Committees be limited to 10 members each, representing different geographical areas. Dr. Radtke replied that this would create a problem because there would be a tendency to reject certain research programs which might be of importance in one area but of no importance in other geographical areas. Mr. Buchanan reported that he had received a letter from one of the Japanese ILZRO members criticizing the number, types, terms, and contractors used for various ILZRO research programs. The letter questioned the ratio of high-risk to low-risk programs, the adoption of many small programs versus a few large programs, long term versus short term exploratory programs, and objected to contracts with military organizations and with ILZRO member companies. Mr. Ghysens suggested that meetings of the European members could be held to review the ILZRO programs and the results reported back to the various ILZRO committees.

Mr. Buchanan agreed to the need for revision of the present ILZRO committee structures and thanked the members of the Executive Committee for their suggestions. He said that the entire matter will be placed on the agenda for the 1971 ILZRO Board of Directors Meeting.

Lead Industries Association, Inc. Environmental Health Activities

Dr. Schrade F. Radtke reported that he had met with Mr. J. L. Kimberley, Executive Vice President of the Lead Industries Association, Inc., (LIA), to discuss future management of the LIA environmental health operations. It was agreed that ILZRO will manage the environmental health service and information activities of the LIA under the supervision of Dr. J. F. Cole,

ILZRO Manager of Environmental Health, with the understanding that the arrangement be made retroactive to January 1, 1971, that ILZRO would interview and hire a man to work under Dr. Cole, and that salaries, travel and entertainment expenses, and overhead costs for the new man would be reimbursable to ILZRO on a quarterly basis. Dr. Radtke reported that Messrs. J. G. McCullough, S. D. Strauss, and J. R. Englehorn approved this arrangement on behalf of LIA and that there would be no adverse effect on ILZRO's costs as a result of managing the LIA environmental health program. He also mentioned that a very close cooperation existed between Dr. J. F. Cole and Mr. J. L. Kimberley and that, in fact, they were scheduled to appear together on a national television program to present the lead industry's position on the use of tetraethyllead in automotive gasolines.

Upon motion duly made and seconded, it was unanimously:

RESOLVED, That ILZRO will undertake the management of the Lead Industries Association, Inc. Environmental Health service and informational activities effective January 1, 1971 with the understanding that ILZRO would be reimbursed on a regular basis for personnel, travel and entertainment, and overhead expenses incurred, in accordance with terms in Appendix A below.

Dr. Radtke stated that Mrs. Margaret J. Carpenter will set up a separate ILZRO account for this new operation.

Disposal of the Zn 75 Car

Mr. C. Osborne Buchanan reported that the Zn 75 car was being stored for two months in Italy, in the custody of Dr. Giovanni Scacciati, pending a possible showing to the Italian automobile industry. He then reviewed the January 29, 1971 letter from Mr. Kenneth J. Altorfer, ILZRO Manager of Development, regarding disposition of the Zn 75 automobile. The letter pointed out that the Zn 75 was a show car, that many essential components were missing, that shipment around the world has caused wear, tear, and damage, that current safety standards (especially in the U.S.A.) could not be met, that there are certain engineering aspects which would

require extensive modification prior to disposition of the car (carburetor replacement, radiator replacement, and certain modifications of the braking system), and that there would be a question of liability which ILZRO would assume as manufacturer of the modified Zn 75.

Mr. James R. Alexander requested that several bids for the Zn 75 car be obtained from New York and Connecticut automobile dealers who specialize in the sale of foreign automobiles, as the basis for establishing the current value of the car.

Upon motion duly made and seconded, it was unanimously:

RESOLVED, That when the Zn 75 car is returned to the United States following its showing in Italy in 1971, that several competitive bids be obtained from dealers in the New York City area who specialize in the sale of foreign automobiles which meet U.S. safety standards.

Mr. M. I. Freeman stated he was anxious to give Dr. S. F. Radtke any possible preference in purchasing the Zn 75 car after receipt of the competitive bids.

ILZRO Patenting and Licensing Activities

Dr. Dodd S. Carr reported that a meeting had been held with Allied Research Products, Inc. to negotiate a 10-year extension of the ILZRO License in the field of zinc anodizing (ILZRO Project ZE-38) and that mutually acceptable terms were agreed upon.

Upon motion duly made and seconded, it was unanimously:

RESOLVED, That the ILZRO license agreement in the field of zinc anodizing (ILZRO project ZE-38) be extended for a term of 10 years and that a royalty of 5% of gross sales would be paid to ILZRO in lieu of the former \$1,000 annual fee plus patent maintenance costs.

Dr. Radtke reported that a meeting had been held with Nippon Light Metal Co., Ltd. to negotiate a cross-licensing agreement with ILZRO in the field of pore-free die casting (ILZRO Project ZM-126).

Upon motion duly made and seconded, it was unanimously:

RESOLVED, That the cross-license agreement between ILZRO and Nippon Light Metal Co., Ltd., be approved in the area of pore-free

die casting employing reactive gases based upon patented and unpatented technology developed by ILZRO and Nippon Light Metal Co., Ltd. ("NKK") and that any royalty income be equally divided between ILZRO and NKK after deduction of specified legal and licensing costs.

Dr. Carr reported that efforts were continuing to obtain ILZRO licensees in the field of chromium plating from trivalent chromium plating solutions (ILZRO Project ZE-98). He also announced that the organolead license agreement with Carlisle Chemical Works, Inc. was terminated at their request on February 1, 1971 due to a change in corporate policy (ILZRO Project LC-18). Also, the ILZRO license agreement with Pure Chemicals Ltd. will be terminated because of poor performance by the licensee (ILZRO Project LC-18).

Dr. Carr then reported that applications for registration of the mark "ILZRO" had been filed in the United States and the following foreign countries: Argentina, Australia, Austria, Belgium, Brazil, Canada, Denmark, France, Ireland, Italy, Japan, Norway, South Africa, Spain, Sweden, Venezuela, and West Germany. He also reported that the mark "ILZRO" received registration No. 869,203 in West Germany on May 14, 1970.

A copy of the ILZRO Patent Estate showing a summary of worldwide patents issued on inventions resulting from ILZRO-sponsored research programs, through February 1, 1971, was distributed to each member of the Executive Committee in attendance.

Research and Development Report

Dr. Schrade F. Radtke reported that a total of six standard two-cylinder zinc engine blocks (ILZRO Project ZD-167) had been die cast by Chrysler Corporation for use in 55-horsepower electrically controlled outboard engines for motor boats, using ILZRO 16 alloy. Five of the engines will be tested in the Caribbean on a year-round basis and the sixth one in the waters of a Connecticut river. Dr. Radtke pointed out that the list price of these engines is \$1,200, but that they were made

available to ILZRO at a cost of \$763 each, the distributor's cost. Further, he announced that engines would be available to ILZRO members at the above cost. Dr. Radtke announced that the specifications for bolted galvanized structures had been published by the American Society for Testing and Materials and were designated ASTM A 325 - 70 a. Also he announced that the Zinc Institute, Inc. was ordering a reprint of 5,000 to 10,000 copies of the ILZRO manual on Galvanized Reinforcement for Concrete.

Regarding the zinc wheel program, Dr. Radtke reported that he has accumulated 20,000 miles on each of two cars fitted with zinc die cast wheels and that they are in excellent shape in spite of exposure to adverse weather, during two winters, and very rough driving conditions. Mr. Buchanan stated that zinc wheels had been used at temperatures of -45°F on one of his company's vehicles in Canada since August 1970 and that they were giving excellent performance. Dr. Radtke announced that an ILZRO contract had been signed with the American Racing Equipment Company for a new wheel design based upon the use of ILZRO 14 alloy.

The General Electric Company program on the development of an electric vehicle will include two vehicles with parallel controls and later models will have available SCR (silicon controlled rectifier) controls, incorporating regenerative braking, according to Dr. Radtke. GE proposes that up to 10,000 electric vehicles would be produced initially for limited mission uses, such as post office and telephone company trucks, and that they will be fitted with lead acid batteries. Dr. Radtke stated that the battery charger was omitted from the vehicle in order to reduce the total weight.

Other programs discussed by Dr. Radtke included: lead-plastic composites, the BNF welding program, the Battelle controlled injection device for zinc die casting, thin-walled galvanized steel tubing, new

thermoplastic alloys, and BNF extrusion of lead rod from particulate lead.

Dr. Radtke then distributed copies of "ILZRO Publications in 1970" as prepared by A. L. Ponikvar, ILZRO Manager of Technical Publications. He also reviewed a number of ILZRO reprints and articles published during 1970.

Finally, he reported that ILZRO and Zinc Institute, Inc. would assist Allied Research Products, Inc. in promotion of the zinc anodizing process on a worldwide basis.

Mr. Ghysens asked if the Zinc Institute, Inc. would take over the promotion of zinc wheels. Dr. Radtke replied that ILZRO was making the new design and obtaining manufacturing costs. Then the program will be turned over to the Zinc Institute and to all other market development associations for promotion of zinc wheels. Regarding ILZRO 14, Dr. Radtke pointed out that problems initially encountered at General Motors Corporation were solved by using a higher holding temperature prior to casting. This prevented the formation of sludge caused by intermetallic compound formation at lower holding temperatures.

1971 ILZRO Annual Meeting Location and Date

Mr. C. Osborne Buchanan stated that the International Lead Zinc Study Group would be meeting in Madrid, Spain between October 25 and November 3, 1971. He then proposed that the ILZRO meetings be held in Paris during the week of October 17, 1971. However, Mr. Ghysens recommended that the Program Review Committee meetings be held during the week of November 1 to November 5, 1971 and that the Board of Directors meeting be held on Monday, November 8, 1971.

Upon motion duly made and seconded, it was unanimously:

RESOLVED, That the ILZRO Program Review Committee meetings be held in Paris during the week beginning November 1, 1971 and that the ILZRO Annual meeting and ILZRO Board of Directors meeting be held in Paris on Monday, November 8, 1971.

Mr. Ghysens said that he would check with Mr. A. C. Pommerie at

Compagnie Royale Asturienne des Mines regarding the suitability of the above meeting dates in Paris, pointing out that they occur just after the International Study Group Meeting.

Other Business

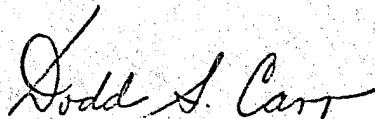
Mr. Ghysens said that he felt that a period of two years between ILZRO planning sessions is too long. Dr. Radtke replied that problems included the time and money necessary to hold such meetings. Mr. Buchanan suggested that European and North American regional meetings be held and that the research ideas be traded between the two regions. Mr. Ghysens suggested that regional meetings be held in alternate years and that the regular international meetings of ILZRO be held in the intervening years. Dr. Radtke reported that the ILZRO technical committee meetings were being planned for the end of September and the beginning of October 1971.

Time and Place of the Next Meeting

Mr. William J. Veenis suggested that the next meeting of the ILZRO Executive Committee be held in late June 1971 in order to consider the 1972 assessment schedules and their effect on the 1972 ILZRO budget.

Adjournment

There being no further business to come before the meeting, it was, upon motion duly made and seconded, unanimously agreed to adjourn at 3:40 p.m.



Dodd S. Carr
Corporate Secretary