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IMPRESSIONS OF OBSERVERS AT BIKINI

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1. Australia. Commander S. H. K. Spurgeon, Royal Australian Naval Attache in Washington and Non-Participating Observer, remained with the ship only during the first test during which time I had no conversations with him. I noted that he took notes during lectures and discussed some of the points with Bertrand Goldschmidt of France who said later Spurgeon had only the foggiest idea of the mechanisms involved in the atomic bomb project. Dr. Oliphant, who was scheduled to join the group, did not arrive.

2. Brazil. Commander Carlos Almeida Da Silva, Brazilian Liaison Officer at the Philadelphia Navy Yard and Brazilian Non-Participating Observer at the tests, spoke very poor English and remained somewhat aloof from the rest of the group. On the other hand Major Orlando Rangel, Member of the Brazilian Military Commission in Washington, D. C., and Advisor to the Brazilian Representative on the United Nations Atomic Energy Commission, was quite active among the observers and asked a number of questions. He demonstrated a great deal of interest in thorium. He said he knew there were large deposits of monazite in Brazil but that he didn't know where they were. He is very confused about the scientific details of a project.

3. Canada. Air Vice Marshal E. W. Stedman, Canadian Non-Participating Observer and former Head of Research and Development, Royal Canadian Air Force, seemed to have an excellent grasp of the technical features of the project. He stated shortly after the Able Test that the results had been about as the Canadians had anticipated and he deplored the tendency to minimize the effects of the bomb in view of the fact that fear of the atomic bomb was forcing nations together in a cooperative enterprise which they would never achieve without it.

4. China. Major General T. Fisher Hou, Military Attache in Washington, D. C., and Chinese Non-Participating Observer, appeared to have very little technical knowledge and asked no questions concerning the tests or the project. Dr. Chung-Yao Chao, Director of the Department of Physics, National Central University, Nanking, is a very able nuclear physicist. He did graduate work at the California Institute of Technology in 1930 and has published several papers on nuclear physics in China during the 1930's. He said that China has no high-voltage apparatus at the present time and doesn't expect to be able to do much in the field of experimental nuclear physics for a long time. He is going to try to encourage some of the Chinese nuclear physicists in this country to return to China to assist him in his work, mentioning Chang of Princeton specifically. He visited E. O. Lawrence at Berkeley before leaving for the tests, but this seemed to be primarily a social call.

5. Egypt. Lt. Col. Abdel Cafar Osman, Chief Inspector of Explosives of the Egyptian Army and Advisor to the Egyptian Representative on the Atomic Energy Commission, apparently understands little English and remained entirely in the background overshadowed by his dynamic colleague Colonel Hassan Ragab, Egyptian Military Attache in Washington, D. C. Ragab is extremely interested in organizing a nuclear research project in Egypt. Ragab said that there are large deposits of uranium in the Egyptian desert and that a project is now underway to develop these deposits. He also mentioned the deposits of monazite sands near the mouth of the Nile and he said that these were being exploited

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now and before the war. He did not know the extent of the deposits, but he stated that many tons had been sent to Germany before the war.

6. France.

a. Observers: Capt. Henri Balande, Representative of the General Staff of the French Ministry of National Defense, spoke only rudimentary English and was rather shy of contact with most of the observers. He expressed one day, however, his satisfaction with the first test and said that it went about as he had anticipated.

Bertrand Goldschmidt, Member of the French Atomic Commission, is a former associate of Irene Curie and during the war was Director of the Chemistry Division of the Montreal Laboratory of the Canadian atomic energy effort. In describing his departure from the Project for France recently Goldschmidt said he had an interview with General Groves which was blunt but fair. He said he believes General Groves was a singularly good choice as a military head of the Manhattan Project because he is a "genius of organization." Goldschmidt was a little bored with the tests and after the first one wired for permission to return to New York, but he received two denials from Joliot and an explanation from Kowarski later that while it was a miserable waste of time it would be impossible to prove that to the French people and so for the sake of appearances he must stay.

Andre Labarthe arrived at Bikini just after the first test to replace Yves Farge, a communist underground worker and writer, who was recalled to France as Food Minister under Bidault. Labarthe was formerly Professor of mechanics at the Sorbonne and had an excellent technical appreciation of the project. I read one of a series of twenty-eight articles he has written for his primary newspaper, France-Soir, and it was quite good. Labarthe was Minister of Information under Giraud during the war whom he admires intensely. He explained that he had become associated with journalism because of his impatience with contemporary journalists, and he continually criticized the sensational approach to news used by most of the journalists at Bikini. I showed him a quotation from the French paper "L'Humanite" which claimed to be "unimpressed" by the first test. He snorted "Those Communists are all fools."

b. Frederic Joliot-Curie: Joliot is deeply hurt by the statements against him which appeared in the Smyth Report. In this connection he says both Einstein and Szilard have personally stated to Joliot that they had no part of these statements. Goldschmidt said Joliot is also almost obsessed with the idea that people believe that everything he knows he tells to Moscow. He said that when he and Gueron and Kowarski first arrived in France they were puzzled by the fact that Joliot almost completely ignored them and certainly failed to show the lively curiosity in their work that they had anticipated. After a short time Joliot called a meeting at which he stated to them categorically that none of the information on nuclear research known to him would go to Russia except as specifically included in public treaties between France and Russia. He stated that he recognized the difficult position in which they were placed and he promised to ask nothing of them which would not be immediately needed for the French program. Because of the nature of the program, Goldschmidt thought this might work with a minimum of difficulty.

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In his attitude towards Operation Crossroads Goldschmidt said Joliot had gotten caught by his "disease" of talking too much. He said that Joliot was in Brussels when the first rumors of an atomic bomb test were received and he vigorously denounced such a plan before he learned that they would be open to international observers. Shortly afterwards both he and Auger received official invitations to attend the tests but both felt that three months was too long to spend and to explain their absence they continued their statements condemning the tests. According to Goldschmidt Joliot and Auger are extremely jealous of each other.

Andre Labarthe reported that Joliot was astounded that Labarthe had been permitted to see even the exterior of the plants at Oak Ridge.

c. French Plans: The general plan of France for atomic energy is not to develop a full-scale program but to use its time well until it is clear what may develop from the United Nations Atomic Energy Commission. Because they expect that enriched uranium may eventually be made available through an International Control Agency they are undertaking no isotope separation work at all. Two small piles will be built near Paris, a heavy water pile and a graphite pile of ten to fifty thousand kilowatt capacity. Joliot hopes to be able to interest the Netherlands and the Belgians in collaborating on the financing of a 60 to 100 Mev cyclotron which they hope to order from Switzerland. In general France hopes to collaborate with Great Britain in this work "if she feels she can free herself from America," and if this fails the emphasis will be placed on a west European bloc. I asked why collaboration with Great Britain depended upon their independence from America and Goldschmidt replied that it seemed quite clear that America would not want to collaborate with France.

d. United Nations Atomic Energy Commission: A letter arrived dated July 3 which Goldschmidt read in its entirety. Kowarski felt things in the UN were going very slowly and many of the scientists feel nothing at all may come of it, although the diplomats tell them they are naive children and that things are going exceptionally well. Kowarski and Pierre Auger attended the American Physical Society meeting in Chicago on 20-22 June where they saw a number of the University of Chicago people. Kowarski expects to return to Paris with Joliot at the end of August.

7. Great Britain. Commander A. H. P. Noble, Member of Parliament, Conservative Party, while quite affable as an individual made little comment upon the tests or upon the status of atomic energy. He did not contribute his observations to either of the two seminars on the first test but his more voluble colleague, Frank Beswick, Member of Parliament, Labor Party, participated fully in all activities. Beswick professed himself to be entirely ignorant concerning the technical aspects of the atomic bomb and most of his questions were quite elementary. He was interested in the duration of the flash from the bomb which he felt was of too short duration to accomplish much damage to wooden or steel structures and he asked if there was any possibility that the bombs could be made in such a way that the same total energy could be released more slowly. During the seminar on bomb damage after the first test Beswick made the statement that he felt the worst possible result of the tests would be that "the public might become cynical or blase about the atomic bomb as a reaction to the publicity to which they have been subjected during the last two weeks."

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8. Mexico. Lt. Col. Juan Loyo Gonzales of the Mexican General Staff spoke only Spanish and consequently had little contact with the rest of the observers. Dr. Nabor Carillo, Director of Scientific Research of the National Universities of Mexico, was an extremely able and versatile man, a graduate civil engineer and mathematician. He said he is director of research of eight institutes in Mexico of which the Institute of Physics is one and is headed by Dr. Graef. Carillo said he knows of two small occurrences of uranium in Mexico but they are too small to be of importance. He said that pending UN action the Mexican Government was doing nothing to nationalize uranium deposits. He is interested in educating the Mexican people in nuclear physics and has translated the book of Marshak and Deutsch "Atomic World" into Spanish to be published by the government.

9. Netherlands. Captain George B. Salm, Head of Naval Intelligence of the Royal Netherlands Navy, appeared to be a very able man who had mastered the main points of the Smyth Report but showed no great interest in the technical features of the Project. On the other hand Major Hajo Bruining of the Technical Section of the War Office and Doctor of Physics at Leyden University showed great curiosity about the Project. He stated that he was with the Philips-Eindhoven Company before the war and had studied electron emission. Bruining said a nuclear physics program had not been organized in the Netherlands yet and that probably they would wait until the UN had taken action before beginning organized work.

10. Poland. Dr. Stefan Pienkowski, President and Professor of Physics of Warsaw University, spoke no English and had little contact with the observers. He stated that he had expected more of a cataclysm from the bomb explosion but that the damage in the lagoon had been about as extensive as he had anticipated. He believed the reddish hue in the ascending cloud from the bomb was explained by emission from free nitrogen in the air activated by beta radiation from the fission products.

Dr. Anrezej Soltan, Professor of Physics at Lodz University, spoke fair English but was extremely reserved and difficult to talk with. He stated that he had done no research for seven years, remaining in Poland throughout the war, and because of the devastation in Poland did not expect to begin research for some time. Pienkowski also told one of the observers that the reconstruction of Warsaw University had not begun as yet. Perhaps because of language similarities or for deeper reasons the Poles and the Russians remained very close throughout the trip and Major Bruining of the Netherlands commented that they are probably simply additional Russian delegates at the UN. He wanted a table of isotopes and Goldschmidt prepared a table showing the heavy isotopes which had been published and their relation to each other.

11. Russia.

a. Observers: At the last minute before the special observers train left Washington the proposed Russian observer, Dr. Skobeltsyn, was replaced by Dr. Mikhail Mescheryakov whom none of the other Russians appeared to know. Mescheryakov spoke only a few words of English and announced himself as a physicist, head of the Cyclotron Laboratory at Leningrad. None of the other observers believed this and assumed that he was an NKVD agent

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assigned to watch Dr. Alexandrov, the other Russian observer. This was not true as I have seen references in the Soviet Literature to Dr. Mescheryakov's connection with the construction of the Leningrad cyclotron in 1938. Moreover during the time the party was ashore Mescheryakov paid little or no attention to Alexandrov, remaining aloof and often going upon long walks by himself while Alexandrov associated freely with the other observers. Mescheryakov received an annual salary of 6,000 rubles and this figure includes a two-weeks vacation each year. In general Mescheryakov was very uncommunicative, hiding behind his professed lack of English although we noticed he read the New York Times regularly. I noticed that Mescheryakov was quite susceptible to the influence of alcohol and after a few beers became relatively garrulous. At the cocktail party at the Ala Wai Officers' Club in Honolulu, for example, he spoke at great length with the Russian wife of a Rear Admiral Hansen (phonetic) who stated later that most of his conversation was a fanatical eulogy to Communism. For the most part he was quite glum and manifested interest in the proceedings only three times; after the lecture on bomb physics, during the bomb test itself, and when the observers examined the damage to the ships after the test.

Dr. Simon Peter Alexandrov was a much more affable man than his colleague, and except when representing Russia officially was quite a pleasant individual. He was born in Shachty ("Mines") in the Donietz Coal Basin of South Russia on 12 February 1891. In 1914, before attending college, he spent a summer with a geology prospecting group which explored the Tyuya Muyun deposits of Fergana. In 1922 he graduated from the Mining Institute of Leningrad where he had specialized in ore dressing, and he immediately began the organization of the commercial production of rare earths and rare metals. At the same time he was appointed teacher of ore dressing at the Institute. In 1927-28 he visited the United States to study ore dressing methods. He visited Uravan and Climax in Colorado and a molybdenum deposit in New Mexico, being primarily interested at the time in Molybdenum, tungsten and vanadium. He met Frank Hess of the Bureau of Mines and Kithil, also of the Bureau of Mines, who prepared a report shortly after the first world war on vanadium and other radioactive ores in the United States. Alexandrov admired this work and mentioned that he has a copy of Kithil's paper. He began his own original research after his trip to the United States and specialized on the dressing of complex ores of lead, zinc, and copper from the Ural and the Altai mountains. In 1929 he was elected Professor of Ore Dressing in the Moscow Non-Ferrous Institute where he has remained until the present time. In 1937 he worked on gold and tin production in the Yennessey river and in the Far East. During the war Alexandrov worked on the extraction of metals of strategic importance such as nickel, cobalt, molybdenum, tungsten, tantalum, platinum, tin, etc., and he also claimed to have worked on uranium during the war. He claimed to have developed more than sixty different processes of ore dressing which had been published in Russian technical journals and in 1933 he translated into Russian the work of Gaudin on "Flotation Processes." Alexandrov is married and has two boys, the elder, Mstislav, is 23 and is specializing in radar at the Moscow Electrical Institute. It is curious that Mstislav is being sent on a government mission to New York in September in connection with radar, although according to Dr. Alexandrov he has not finished his training.

As an insight into his character the following is of interest.

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One Sunday morning while playing shuffleboard Alexandrov noticed that religious services were being held on the afterdeck and he asked if it would be improper to photograph them, explaining that his mother and father were very religious people and such a picture would please them. He added that he is a very religious man (Orthodox) and that someday they would have religion again in their country.

I should mention a habit of Alexandrov's which other observers also encountered, to their annoyance. In order to discourage questions, Alexandrov would deliver a sort of filibuster in reply in which usually everything but the answer to the question appeared. Another favorite trick of his was to bring up a debatable point in the course of his filibuster and when two or more of the other observers entered the conversation he would smile politely and excuse himself.

It was not learned what Alexandrov's exact financial position is, but according to Dr. Paul Galtsoff, a white Russian who translated most of Alexandrov's official statements, Alexandrov received considerably more than 6,000 roubles a year and once a year is permitted a free round-trip train ride to any point of his choosing in Russia.

b. Russian Atomic Energy Project: It was difficult to get any information out of Alexandrov on this subject and of course impossible to get anything out of Mescheryakov on any subject. However, in the course of a lecture on "Mineral Resources of the USSR" Alexandrov made the statement that concerning radioactive ores he could mention only radium and thorium, uranium being Top Secret. "I can say, however," he added, "that the study of uranium fission is proceeding in my country with success and this determines the position of the Soviet delegates to the United Nations Atomic Energy Commission." In discussing a new ore of thorium which had been discovered Alexandrov made the statement that "you and I know thorium will not be made into atomic bombs and I can tell you these things." At one time Alexandrov drew our attention during a lecture to the highly dispersed occurrence of most strategic minerals in Russia and stated that in this respect Russia would be in a very secure position in a future atomic war.

At only one time did either of the Russians manifest interest in heavy water. This was when Alexandrov asked, after a lecture by Dr. John Grebe of Dow Chemical Company on "Raw Materials from the Sea," if heavy water had been extracted from sea water. This seems interesting since it indicates that Alexandrov is aware of the slightly higher concentration of deuterium in salt seas and suggests that the Russians may be considering using the saline lakes near the Aral Sea for heavy water concentration.

An interesting, if irrelevant point was reported by Jack DeMent, co-author of the book "Uranium and Atomic Power," who said that Alexandrov stated that there are many copies of his book translated into Russian and although he himself had not used it, he said his colleagues in Moscow sent DeMent their thanks.

c. Russian Attitude: At all times the Russian attitude aboard ship was a duplicate of Russian attitude in the United Nations: suspicion, bombast, wounded pride, indignation, etc. When the Foreign Observers were

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first assigned staterooms (alphabetically, by nations) the Russian stateroom, being the last one, was in the center of the ship and had no portholes. This was probably particularly disappointing to Alexandrov who had the most elaborate movie camera aboard, an obviously newly purchased American model with telephoto lenses. This caused a near riot in fact and offers by other observers to trade rooms with them and assurances from the Captain of the ship that room assignments were arbitrary and not made with malice aforethought were necessary before they accepted their room quietly. Later Alexandrov was to participate in an informal radio interview and at the last minute he arrived at the studio with a twenty-minute prepared speech, and when he was not permitted to read it he became very upset. Some of the observers explained that American radio audiences do not like prepared speeches and prefer spontaneous interviews, and Alexandrov complained: "In our country it would not be like that!"

The major "incident" occurred when the ship's newspaper, the Panamint Press, carried an AP dispatch reviewing Bullit's new book "The Great Globe Itself." The Russians felt this was a personal affront and they wrote a letter of protest to the Captain of the ship, sent a cable report to Moscow, and threatened to leave the ship. Later Alexandrov told Andre Labarthe that "This thing is terrible...each day I see that we are nearer war than I had thought...I suffered in this war as did my friends and the Americans...why can't we have peace? I am so discouraged I would like to leave the ship at Guam and go home through Japan!"

The Russian attitude towards the Baruch proposal for control of atomic energy was both categorical and frank: they would have none of it. When asked what was wrong with it they said simply that it left us in too powerful a position, and when reminded that we had said we would destroy all of our atomic bombs they answered simply: "But we don't believe you!" This lack of faith was not strengthened by the cruise among the "Island Bases in the Pacific" and when we reached Truk Alexandrov looked at the fortifications and asked "Is this humanity or is this imperialism?"

d. Radioactive Ore Resources: Alexandrov said little on uranium resources, and W. W. Rubey of the U. S. Geological Survey reported that he stated that the Tyuya Myyun deposits at Fergana are the only uranium deposits he was free to mention. He did mention that the radium industry of Russia had been founded in 1909 and that when the war began there were three refineries in Russia, the oldest of which was at Fergana. He stated that a source of radium and mesothorium in water solution had been found at Ukhta, 1200 miles N.E. of Moscow, and that this had been developed commercially during the war. He said little is known about the origin of the water, but he described in detail the separation process used giving no indication of output of radium or mesothorium. Monazite, according to Alexandrov, had been found in at least traces in most of the Soviet gold placers, but in most concentration on the Yenesei and Kama rivers. He said a few primary deposits of "yellowish" ore of thorium were known, but that these were of academic interest only. He said that in 1944 a new ore of thorium, Khlopinite, was discovered and it is a hydrous silicate of thorium oxide which occurs in dispersed form like monazite. A survey is underway now to determine from the distribution if there may be a primary lode occurrence.

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