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October 24, 1944. Colloquium. Captain Ackerman, A.U.S., spoke on preparing shapes masses of high explosives for implosion spheres.

November 21, 1944. Colloquium. Dr. Manley spoke on integral studies particularly on tamper measurements.

November 28, 1944. Colloquium. Dr. Nicholas Baker discussed nuclear reactions of heavy elements and particularly the various results obtained when a neutron comes in contact with heavy nuclei, such as Uranium 238.

December 12, 1944. Colloquium. Dr. Oppenheimer mentioned the three alternative methods for implosion. These include: (1) Christy compression of a solid sphere; (2) Neddermeyer low velocity implosion to avoid jets; (3) The shaped charge assembly or rearrangement of fissile material. The speaker was Critchfield who discussed initiator for the neutron reaction. He mentioned the Alvarez gamma-Neutron source, the deuterium - deuterium reaction as an initiator, as well as the developed procedures of Ayers and Robinson.

December 19, 1944. Colloquium, addressed by Dodson. Subjects discussed were (1) Radio lanthanum experiments on the Christy compression procedure; (2) Foils of active material for neutron measurements; (3) Sensitive neutron detectors; (4) polonium chemistry, and (5) procedure for separation of radio lanthanum from source material.

December 26, 1944. Colloquium. McDaniels spoke on measurement of the fission and neutron capture of Uranium 235 and Plutonium 239. Considerable discussion was given to the attempted coordination of the experimental results with the theoretical predictions.

January 2, 1945. Colloquium. Dr. Oppenheimer briefly mentioned the Christy solid sphere implosion, the shaped charge assembly of fissile material, and the proposal to have E.R.L. study the latter. Koski was the speaker on methods of eliminating jets in the implosion.



January 16, 1945. Colloquium. Bethe spoke on jet theories in the implosion gadget. Experimental analysis by Tuck of the British Mission and

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calculations by Fuchs of the British Mission were included in the discussion.

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January 22, 1945. Coordinating Council addressed by Teller on the subject of autocatalytic methods of explosively releasing energy from fissile material.

February 5, 1945. Griesen talked on the X-ray technique of implosion examination, particularly as to its limitations and shortcomings.

February 26, 1945. Colloquium. Seybolt addressed group on shaping of uranium by casting, rolling, and pressing and by Balke on powder metallurgy.

March 5, 1945. Coordinating Council. Dr. J. R. Oppenheimer outlined the future program of gadget study, emphasizing the freezing of designs in guns and implosion assemblies.

March 6, 1945. Colloquium. Mr. Penny talked on the subject of damage by the blast effect of a gadget.

March 12, 1945. Coordinating Council. [REDACTED]

March 19, 1945. Colloquium. Mr. Marley spoke on the subject of explosive lens design and results for producing spherical implosion wave.

March 26, 1945. Coordinating Council. Dr. Weisskopf spoke on the subject of the proposed study of the explosive fission reaction efficiencies by observation of the blast wave, neutron emission, X-ray (particularly the delayed), and the fission products. Latest critical mass values were announced.

April 2, 1945. Coordinating Council. Seybolt spoke on the shaping of Uranium 235, specifically casting, and Jette on the processing of plutonium metal and the allotropic forms of the material, mentioning the toxic dust hazards in the processing.

April 9, 1945. Coordinating Council. Peierls spoke on results of implosion theoretical study.

April 10, 1945. Colloquium. Teller spoke on autocatalysis of fission chain reactions.

63 per DOE

April 16, 1945. Coordinating Council. Rossi spoke on the radio-lanthanum experiments for examination of the implosion.

April 17, 1945. Colloquium. Commander Birch spoke on the subject of gun assembly of fissile material with illustrative slides. Serber discussed theoretical predictions of the performance of the gun.

April 19, 1945. The Theoretical Division meeting was addressed by Bethe on design of neutron sources or fission reaction initiators, discussing specifically the Bethe-Tuck developments.

April 23, 1945. Coordinating Council. Koske spoke on the argon flash examination of imploding hemispheres and cylinders with and without lenses.

April 24, 1945. Colloquium. Frisch discussed the activities of Group 1 of the Gadget Division, specifically covering the critical assembly of Uranium 235 and the "tickling of the dragon's tail" experiments by dropping a cylinder of fissile material through a tamper material to produce a very slightly super-critical assembly.

April 30, 1945. Coordinating Council. Robert Wilson spoke on experiments for determining the multiplication constant in neutron density calculations. Serber commented on the check of the experiments with theoretical considerations.

May 7, 1945. Coordinating Council. Critchfield talked about the three potential neutron fission reaction initiators for the implosion gadget. These included the Tuck-Bethe jet "Urchin," the Serduke beryllium plug "Melon-Seed," and the N. Baker granular "Nichodemus." Johns discussed the chemistry of polonium and procedures for handling this material.

May 14, 1945. Coordinating Council. Bainbridge spoke on the results of the trial shot of 100 tons of high explosive at Trinity. Comments were made on the effectiveness of various measuring devices.

May 21, 1945. Coordinating Council. Ramsey spoke on the more recent work on the ultimate delivery of the gadget, including assembly of the parts, dropping of the gadget from a plane, and means for observing the functioning of the various parts.

May 28, 1945. Coordinating Council. Commander Bradbury spoke on the assembly of the implosion gadget as to the high explosive and alignment of parts. Allison briefly mentioned that the stabilization of the delta phase of plutonium looked good.

June 4, 1945. Coordinating Council. Fermi spoke on planned experiments for observing the approaching implosion fission reaction experiment at Trinity, emphasizing the problems involved.

June 12, 1945. Colloquium. S. K. Allison spoke on the implosion schedule, tracing it from the invention to the expected test shot at Trinity.

June 18, 1945. Coordinating Council. Bethe spoke on the correlation of theoretical calculations from the assumed equation of state with the observed shock velocity, material velocity, and density increase using the electrical magnetic, X-ray and radio lanthanum methods of observation. The various factors already calculated and those not calculated were considered in estimating the efficiency of the gadget.

June 25, 1945. Coordinating Council. Dr. Oppenheimer mentioned the proposed dimensions of the plutonium sphere for the implosion gadget and the boron modification of the high explosive charge. Greisen spoke on the electric detonators to be used with the high explosive for the implosion gadget.

July 2, 1945. Coordinating Council. Dr. Oppenheimer mentioned the changes in the high explosive detonator. Jette spoke on the pressing of the plutonium hemispheres which would be used in the Trinity test. Dodson described the manufacture of the "Urchin" modulated neutron source, which would be used at the Trinity shot.

July 3, 1945. Colloquium. Bethe discussed the various factors and corrections to be considered in predicting the results of the proposed Trinity test.

July 9, 1945. Coordinating Council. Slotin, O. R. Frisch, Holloway, Kistiakowsky, Serber, and Oppenheimer spoke on tests and predictions relating to, and construction details of, the Trinity test.

July 16, 1945. Coordinating Council attended the Trinity test of the implosion gadget at 0530 M.W.T.

July 23, 1945. Coordinating Council. Oppenheimer mentioned some elements of the future program of this project. Bethe spoke on some observations of the Trinity test.

August 13, 1945. Coordinating Council. Herbert Anderson addressed the Council on the chemical methods for determining the efficiency of the Trinity test shot, specifically on the determination of the relation of fission products to the original plutonium metal.

August 20, 1945. Oppenheimer spoke to the Coordinating Council on the future of the Project.

September 10, 1945. Coordinating Council. Oppenheimer talked on the future of atomic power and legislation relevant thereto. Norman F. Ramsey addressed the group on the development of the combat bombs, including such items as buildings, gadget design, delivery overseas, assembly, and the like.

September 17, 1945. Coordinating Council. Mr. Waldman discussed the efficiency at Hiroshima and Nagasaki on the basis of blast measurements. Reports indicate that the efficiency of the bomb drop on Nagasaki was greater than the Trinity test. There was a showing of technicolor films of the combat drops.

September 24, 1945. Coordinating Council. Dr. Christy discussed some of the non-specific problems arising from the development and use of the atomic bomb.

September 25, 1945. Colloquium. Dr. Edward Teller discussed the "Super," describing generally the thermo-nuclear reaction and the obstacles which must be overcome to initiate such a reaction. He exhibited to the group an embodiment of the "Super" gadget which he thought might be operative.

October 1, 1945. Coordinating Council. Dr. Bradbury discussed the future of the Project until the Commission takes over.

October 8, 1945. Coordinating Council. Robert Henderson discussed the redesign of the implosion gadgets with respect to engineering improvements.

October 15, 1945. Coordinating Council. Placzek discussed the gadget using a composite of plutonium and Uranium 235. L. F. Slotin discussed measurements on a composit gadget.

October 19, 1945. Research Division Meeting. Penney spoke on observations of damage in Japan.

November 5, 1945. Coordinating Council. Serber spoke on observations of damage caused by atomic bombs in Japan. Captain Nolan spoke on the medical aspects of this situation.

December 17, 1945. Coordinating Council. Philip Morrison spoke on power piles, in particular the details of a fast neutron plutonium system using rods and a liquid coolant such as a low melting alloy.

January 21, 1946. Coordinating Council. Colonel Warren, M.C., spoke on his observations of damage and injury at Hiroshima and Nagasaki.

February 4, 1946. The first meeting of the new Interim Council was addressed by Dr. Bradbury on the future of the Project. Among items discussed were the Navy Test; the fast neutron power reactor; the "Super;" stock piling; weapon development; Physics Division work, and the potential conference this summer.

February 11, 1946. Interim Council. Louis Slotin spoke on the high temperature, fast neutron, mercury-cooled plutonium reactor. Mark spoke on the critical mass value for such a reactor.

February 25, 1946. Interim Council. Max Roy spoke on the work of "X" Division, particularly on developments involving slow explosives for lens improvement.

February 28, 1946. Dr. Richtmyer addressed the Theoretical Division Seminar on resonance autocatalytic systems for bomb design.

March 11, 1946. Interim Council. Darrol Froman spoke on the experimental data developed on the levitated implosion gadget and elements of design of that device, including the composite gadget of plutonium and uranium.

March 12, 1946. Theoretical Seminar. Addressed by Teller on the possibility of Thermonuclear reactions in water and air.

March 18, 1946. Interim Council. Discussion of new declassification procedure.

March 25, 1946. Interim Council. Morrison spoke on "Breeders," "Converters," "Power Piles," and the like. This time Morrison did not go into details of operation, as he did several years ago.

April 1, 1946. Interim Council. Mr. M. Kolodney addressed the group on the operation of DP Site with particular reference to the processing of plutonium from the nitrate to the metal component for an atomic bomb.

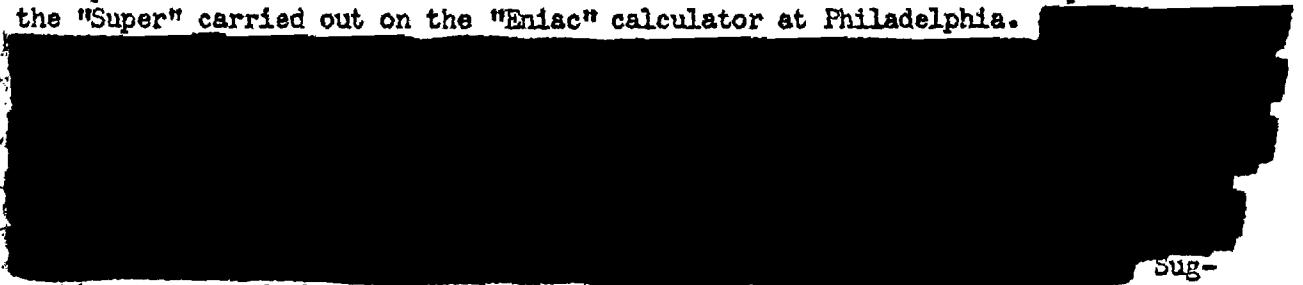
April 8, 1946. Interim Council. P. Morrison spoke on dilution of fissionable materials to permit only peaceful employment thereof. He mentioned the addition of U-238 to various materials such as thorium, plutonium, and the like.

April 18, 1946. (1000) First meeting of the "Super" conference. Mr. Edward Teller gave a brief summary of the subject matter described in LA Report No. 551. He restated the physical considerations and the design factors of the proposed embodiment intended to effect these considerations.

April 18, 1946. (1400) Second meeting of the "Super" conference. Teller presided.



April 19, 1946. (1000) Third meeting of the "Super" conference. Metropolis and Turkevich discussed numerical calculations on various phases of the "Super" carried out on the "Eniac" calculator at Philadelphia.



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gestions were made by various people in attendance as to the manner of minimizing the rise in entropy during compression.

April 19, 1946. (1400) Fourth meeting of the "Super" conference. Mr. Lansdorf continued his discussion on the compression of the various materials. Edward Teller then discussed the experimental program which was believed necessary in the preparation of a "Super."

He mentioned a program for the study of a 14 Mev neutrons released in the nuclear reaction and the cross-sections for various processes concerning these neutrons and the materials employed in the "Super." Furthermore, the various reactions involved in the "Super," such as tritium plus tritium, helium

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plus deuterium, hydrogen plus deuterium, and the like, as well as the nitrogen plus nitrogen reaction should be studied. Cryogenic experiments should be studied. Cryogenic experiments should be carried out for all the materials employed in the proposed device. These experiments should include considerations of the thermal equations of state; the ortho to par conversion; pressure equations of state; heat production in tritium at low temperatures by beta ray emission and so forth. An engineering program was also suggested to cover all engineering and design phases connected with the device. The test program should cover the operation of the assembly device for fission reaction; the fission reaction plus the "primer;" and full scale tests. A further program should be instituted to investigate other suggestions on the initiation of a deuterium plus deuterium reaction such as the jet method proposed by Ulam, etc.

April 20, 1946. (1000) Fifth meeting of the "Super" conference. Mr. Edward Teller presided. The meeting was a general discussion period concerning the possibility of peaceful applications of the deuterium plus deuterium reaction. General schemes were proposed all of which were very far-fetched and presented numerous practical difficulties.

April 29, 1946. Interim Council. Mr. McDibben spoke on the new 8 million volt electrostatic generator proposed for construction at this site. He mentioned new design features and the manner of incorporation of old features into the device.

May 20, 1946. Interim Council. Colonel Seeman spoke on the organization of the U. S. Army and our place therein.

May 27, 1946. Interim Council. Bradbury spoke briefly on the radiation accident occurring on May 21, 1946, indicating that no critical assembly experiments were to be continued until safer methods were developed, and that the involved plutonium sphere was so "hot" that it will not be handled for some time. J. W. Stout spoke on the developments in slow explosives, particularly barium nitrate-plastic compositions, for use in explosive lenses.

June 3, 1946. Interim Council. Milo Sampson spoke on the material and shock velocities in the proposed levitated sphere assembly. Velocities of 4.18 mm per microsecond for the material, and 4.59 mm per microsecond for the shock were measured employing the pin method for velocity determination.