Reactions	$Au^{197} + O^{16}$		$Au^{197} + N^{14}$	$Au^{197} + C^{12}$	
Ion energies, Mev	102	85	89	78	64
l^2_{max}	2700	760	2060	1750	530
Emission ratio of Cd^{115} and Cd^{115m}	0.43	0.50	0.47	0.55	0.64

method after careful purification. The purity of the solution of cadmium was monitored by the β-particle half-life and energy. The measurement of the radiation intensity was taken by an end-window Geiger counter (MSG-17). The thickness of the CdS layer deposited from the filter paper onto a backing was ~ 10 mg/cm^2. The variation of the thickness of the layer of CdS from experiment to experiment, $2 - 3$ mg/cm^2, need not have a considerable effect on the scattering and self-absorption of β radiation.[3] It is also necessary to note that in all our experiments, apparently, a considerable quantity of Ag^{115} ($T_{1/2} = 20$ min.) was formed, which decays 90%[4] to Cd^{115} by β emission. After irradiation, the foil was kept intact for a sufficiently long time for the full decay of Ag^{115}. Additional experiments showed that approximately 30% of Cd^{115} was formed as a result of Ag^{115} decay.

The results of the principal experiments are presented in the table (the given data are uncorrected for the formation of Cd^{115} from Ag^{115}).

The table lists also the computed l^2_{max} for the corresponding reactions (l^2_{max} is the maximum orbital momentum of the ion at which fusion of the impinging nuclei arises). It is apparent that with a change of l^2_{max} from 500 to 3000, the emission ratio of Cd^{115} and Cd^{115m} changes very slightly.

In conclusion we consider it our pleasant duty to thank corresponding member of the Academy of Sciences U.S.S.R. G. N. Flerov for guidance in this present work.

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LATERAL DISTRIBUTION FUNCTION OF THE FLUX OF CHARGED PARTICLES IN AN INDIVIDUAL EXTENSIVE ATMOSPHERIC SHOWER

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THE apparatus in operation at the Moscow State University for an all-out investigation of extensive atmospheric showers (EAS) makes it possible to investigate the individual characteristics of each recorded shower. In this note we report experimental data on the lateral distribution functions of the flux density of charged particles up to 25 meters from the shower axis. To obtain these data, we used a hodoscope with a large number of Geiger-Müller counters and a core detector consisting of ionization chambers arranged in two rows.[1] The first row of ionization chambers, shielded with lead, is used to determine the distribution of the energy flux carried by the electron-photon component near the shower axis. A direct examination of the distribution of the energy flux in the first row of ionization chambers makes it possible to determine the position of the shower axis for showers with a sufficient number of particles, with accuracy on the order of the chamber dimensions (25 cm). The hodoscopic counters were used to determine the flux density of the charged particles at different distances from the shower axis. To investigate the lateral-distribution functions of the flux density of the charged particles in an individual shower, we selected 26 of the densest showers (with $N \geq 10^5$), whose axes fall in the first row of the ionization chambers, for only in such showers can the charged-

No.	S							
	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5
1	0.4	0.1						
2	≪0.01	0.05	≪0.01					
3	0.01	0.7	0.4					
4		0.2	0.6	0.15				
5		0.01	0.1	0.01				
6		0.05	0.5	0.05				
7			0.01	0.15	0.01			
8			0.01	0.5	0.02			
9			0.1	0.3	0.1			
10			≪0.01	0.5	0.1			
11				0.15	0.9	0.2		
12				0.01	0.25	0.05		
13				0.35	0.75	0.15		
14				<0.01	0.15	<0.01		
15				0.03	0.15	<0.01		
16				0.05	0.25	<0.01		
17					<0.01	0.4	<0.01	
18					0.15	0.6	0.01	
19					0.15	0.9	0.01	
20					0.15	0.45	<0.01	
21					0.01	0.1	0.01	
22					0.15	0.4	0.02	
23					0.1	0.5	0.05	
24					≪0.01	0.2	0.1	
25						0.3	0.8	0.1
26						<0.01	0.4	0.02

particle flux density be investigated in this range of distances with good accuracy.

The experimental charged-particle lateral distribution functions obtained for each of the selected showers were compared with the theoretical functions, calculated by Nishimura and Kamata[2] for various values of the cascade parameter S. The theoretical curves were normalized here to the number of particles experimentally observed in a circle of radius 25 m. The Pierson matching criterion was used to choose the theoretical curve corresponding to the experimental data. The results [the Pierson function $P(\chi^2)$] are listed in the table, which shows which values of the parameter S characterize the charged-particle flux density lateral distribution functions in the registered showers with different particle numbers N.

The experimental data given indicate the existence of extensive atmospheric showers of various ages near sea level.

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A MEASUREMENT OF THE SURFACE TENSION AT THE BOUNDARY BETWEEN THE SUPERCONDUCTING AND NORMAL PHASES OF INDIUM

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THE value of the surface tension σ_{ns} at the boundary between the superconducting and normal phases of indium has been measured by a method described previously.[1]

A single-crystal disc with diameter 50 mm and thickness 2.06 mm, fabricated of indium with impurity content ~ 0.002%, was placed in a magnetic field directed at an angle of 15° to the specimen surface. The structures observed were completely analogous to those observed in tin[1] at the same values of H/H_c. The period of the structure was measured for various fields and temperatures and the quantity $\Delta(T) = \sigma_{ns}(8\pi/H_c^2)$ was calculated.*

In the figure are given the results of measurements on Δ made in the range 2.11 to 3.245° K with an accuracy of 8 — 10%. In this range the results can be described within the limits of error by the relationship