will therefore not appreciably spread the peak in x.

One of us (A.K.M.) wishes to acknowledge many fruitful discussions with R. W. Brown and J. Smith.

---

*Work supported in part by the U. S. Atomic Energy Commission.

[1]The hypothesis that weak interactions are transmitted through an intermediate boson field has been considered by many physicists; it was discussed in Yukawa's original work.

[2]See, for example, Y. Yamaguchi, Progr. Theor. Phys. 35, 5 (1966).

[3]A useful summary is given in R. E. Marshak, Riazuddin, and C. P. Ryan, *Theory of Weak Interactions* (Wiley, New York, 1969).

[4]R. Burns *et al.*, Phys. Rev. Lett. 15, 42 (1965).

[5]G. Bernardini *et al.*, Nuovo Cimento 38, 608 (1965).

[6]See Refs. 4 and 5, and also P. J. Wanderer, Jr., *et al.*, Phys. Rev. Lett. 23, 729 (1969).

[7]Private communication from the experimental groups working at Adone, Laboratori Nazionali del Comitato Nazionale per l'Energia Nucleare, Frascati, Italy.

[8]We refer particularly to W production by neutrinos because the theoretical total cross section for W production by neutrinos is much larger than that for W production by muons or electrons. See R. W. Brown, A. K. Mann, and J. Smith, Phys. Rev. Lett. 25, 257 (1970).

[9]J. D. Bjorken, Phys. Rev. 179, 1547 (1969).

[10]R. W. Brown, R. H. Hobbs, and J. Smith, to be published. We are grateful to these authors for allowing us to make use of their results before publication. T. D. Lee, P. Markstein, and C. N. Yang, Phys. Rev. Lett. 7, 429 (1961), also indicated the kinematic features of W production at high neutrino energies.

[11]J. D. Bjorken and E. A. Paschos, Stanford Linear Accelerator Center Report No. SLAC-PUB-678, 1969 (unpublished).

[12]H. Harari, Phys. Rev. Lett. 22, 1078 (1969); H. D. I. Abarbanel, M. L. Goldberger, and S. B. Treiman, Phys. Rev. Lett. 22, 500 (1969); S. D. Drell, D. J. Levy, and T. M. Yan, Phys. Rev. Lett. 22, 156 (1969).

[13]R. P. Feynman, Phys. Rev. Lett. 23, 1415 (1969); see also J. D. Bjorken, in *Selected Topics in Particle Physics, International School of Physics "Enrico Fermi", Course XLI,* edited by J. Steinberger (Academic, New York, 1967).

[14]I. Budagov *et al.*, Phys. Lett. 30B, 364 (1969).

[15]The calculated cross sections of R. W. Brown and J. Smith (to be published) for protons and neutrons include corrections for Fermi motion and the Pauli principle.

[16]H. H. Chen, Phys. Rev. D 1, 3197 (1970); R. W. Brown, R. H. Hobbs, and J. Smith, private communication; J. Reiff, to be published. Note, however, that a larger value of inelastic W production is given by V. N. Folomeshkin, Institute of High Energy Physics, Serpukhov, Report No. 69-56, 1969 (unpublished).

Photoproduction of Muon Pairs with Invariant Masses Between 930 and 1770 MeV†

D. R. Earles, W. L. Faissler, M. Gettner, G. Lutz, K. M. Moy,* Y. W. Tang, H. von Briesen, Jr., E. von Goeler, and Roy Weinstein‡
Department of Physics, Northeastern University at Boston, Boston, Massachusetts 02115
(Received 27 August 1970)

An experiment on photoproduction of muon pairs with invariant masses between 930 and 1770 MeV is reported. The measured invariant-mass spectrum is in good agreement with theoretical quantum electrodynamics predictions plus a contribution from $\varphi \to \mu^+ + \mu^-$ at invariant masses near 1020 MeV. A quantum electrodynamics cutoff $\Lambda \geq 1.9$ BeV (2 standard deviations) and a $\varphi \to \mu^+ + \mu^-$ branching ratio equal to $(2.17 \pm 0.06) \times 10^{-4}$ are obtained. For masses above the φ, limits which are approximately 100 times smaller than the rho are placed on resonance production.

Various theoretical studies, based on the Veneziano model, predict vector mesons with masses between 1200 and 1700 MeV.[1] Attempts to observe these mesons in photoproduction experiments via their $\pi^+\pi^-$ decay modes have yielded negative results.[2] Such tests may fail, even though the proposed meson exists, if $\pi^+\pi^-$ decay is suppressed. The decay of such vector mesons into lepton pairs provides a method of observation which is insensitive to suppression of $\pi^+\pi^-$ decay. In this way the ρ meson has been observed in muon pair spectra[3,4] as has the φ meson.[5,6] Indeed the ρ, ω relative phase was first obtained in this way.[7,8] Observation of heavier vector mesons, which have a product of photoproduction cross section and branching ratio comparable with the ρ or φ, is easier due to the rapid decrease of the quantum electrodynamics (QED) background with increasing pair mass [see Fig. 1(a)].

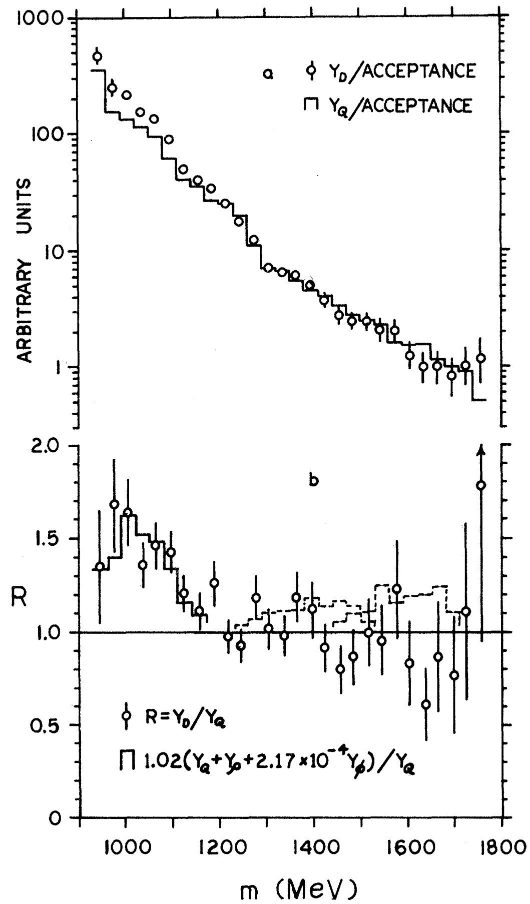

FIG. 1. (a) Yields Y_D and Y_Q divided by the energy-angle acceptance of the apparatus versus μ pair mass. Y_D is the corrected experimental yield; Y_Q is the sum of calculated QED contributions. (b) Ratio $R=Y_D/Y_Q$ vs μ pair mass. The solid line is a fit of the φ to the data. The dashed lines correspond to upper limits placed by the data on rholike resonances. For details see the text.

The present experiment was done in a 6.0-BeV bremsstrahlung beam of the Cambridge Electron Accelerator. Muon pairs were photoproduced in about $\frac{1}{2}$ radiation length of carbon and detected in two identical iron spectrometers placed symmetrically around the incident beam. The apparatus was similar to one used in previous experiments[9] and described elsewhere.[8] The muon-pair invariant-mass interval 930 to 1770 MeV was chosen in order to include the φ as a known resonance on which to calibrate our apparatus. The mass resolution was approximately 10% (full width at half-maximum).

The experimental yield of muon pairs was corrected for dead-time losses, counter efficiencies, and chance background. Empty-target background was <0.7% on the average; in no

Table I. Corrected data, Y_D, the theoretical QED contributions, $Y_Q{}^e$, $Y_Q{}^q$, $Y_Q{}^N$, and the theoretical vector-meson contributions, Y_ρ and Y_φ, vs μ-pair mass. Also given are $R=Y_D/(Y_Q{}^e+Y_Q{}^q+Y_Q{}^N)$ and ΔR, the statistical error in R.

m (MeV)	Y_D	Y_Q^e	Y_Q^q	Y_Q^{N*}	Y_ρ	$10^{-4}Y_\varphi$	R	ΔR
945	58	40	3		13		1.35	0.30
975	129	67	10		15	6	1.68	0.25
1005	222	116	19	1	21	27	1.64	0.18
1035	295	178	37	2	17	40	1.36	0.12
1065	388	219	45	2	22	45	1.46	0.12
1095	359	195	52	3	25	23	1.43	0.11
1125	286	176	56	4	10	9	1.21	0.10
1155	261	166	64	4	10	2	1.12	0.10
1185	255	127	70	6	5		1.26	0.12
1215	203	115	84	8	6		0.98	0.09
1245	184	97	92	10	2		0.93	0.09
1275	171	62	73	9	1		1.18	0.12
1305	123	45	67	9	3		1.02	0.11
1335	111	34	71	9	2		0.98	0.11
1365	111	24	60	9	1		1.19	0.14
1395	89	17	55	8			1.12	0.15
1425	70	15	54	8			0.92	0.13
1455	51	10	46	7			0.80	0.13
1485	46	6	41	6			0.87	0.15
1515	44	5	34	5			1.00	0.18
1545	35	3	30	4			0.96	0.19
1575	33	2	22	3			1.23	0.26
1605	18	1	19	2			0.83	0.23
1635	13	1	17	3			0.61	0.20
1655	11		11	2			0.87	0.30
1695	8		9	1			0.77	0.32
1725	8		6	1			1.11	0.47
1755	7		3				1.78	0.83

mass bin did it exceed 5%. The corrected data (denoted by Y_D) are given as a function of muon-pair invariant mass m in Table I. These data were compared with a calculated theoretical yield that included contributions from QED and from photoproduction of the ρ and φ. The separate theoretical contributions, which are listed in Table I, are discussed below.

The QED yield consisted of several parts: An elastic QED yield $Y_Q{}^e$ was calculated for a spin-zero target as in our earlier work.[3] An elastic form factor for carbon obtained from electron-scattering data was included.

Part of the kinematic region covered in this experiment corresponded to nuclear four-momentum transfers $t=-q^2$ larger than 1 F^{-2}. Electron-carbon scattering data show that inelastic processes become important for t larger than 1 F^{-2}.[10] They indicate that the dominant inelastic process is quasielastic scattering off single nucleons in the carbon nucleus. The quasielastic contribution Y_Q^q was estimated by assuming completely incoherent photoproduction off the twelve nucleons of carbon. Aside from a kinematic correction, the nucleons were treated as free particles which recoiled elastically. Muon-pair photoproduction yields were calculated for single nucleons,[11] including elastic nucleon form factors. The initial nucleons were given momentum distributions and energies based on a shell-model representation of the carbon nucleus.[12] Nucleons were required to have sufficient energy in the final state to be unbound. The magnitude of the quasielastic contribution was not sensitive to details of the nuclear shell model for large values of t. Variation in the assumed nuclear binding energy by ±50%, for example, affected the sum $Y_Q^e+Y_Q^q$ by less than 5% at pair masses above 1400 MeV and by less than 10% at masses near 1000 MeV.

Nuclear energy transfers q^0 up to 1.2 BeV could occur, permitting inelastic processes such as pion production to contribute to the carbon form factor. It was assumed that $N^*(1238)$ production dominates the pion production contribution for our values of q^0. Data on pion electroproduction from carbon indicate that N^* production can be predicted by using experimental cross sections for N^* production from hydrogen.[10] Thus the QED muon pair yield associated with N^* production Y_Q^N was estimated using approximate form factors for hydrogen obtained from pion electroproduction data.[13] The N^* contribution to the pair yield would amount to 8% of the quasielastic contribution at $t=0.04$ BeV^2 and 40% at $t=0.2$ BeV^2 if the entire N^* peak were kinematically accessible. This was not the case in the present experiment. The kinematics of the μ pair production process restricted q^0 and reduced the above percentages (Table I).

All yields given in Table I were generated by Monte Carlo techniques and include the effects of multiple Coulomb scattering and range straggling. They also include a multiplicative factor 0.8 to account for losses due to conversion of photons in the thick target.

Figure 1(a) shows the experimental data Y_D, divided by the acceptance of the detecting apparatus, as a function of the muon pair invariant mass. Also shown is the sum of the calculated QED contributions, $Y_Q=Y_Q^e+Y_Q^q+Y_Q^N$. The graph demonstrates the rapid drop of the yield with increasing mass of the pair. In Fig. 1(b) the ratio R of the corrected data to the sum of the calculated QED yields is shown as a function of pair mass. Figure 1(b) indicates that, except in the region of the φ, there is no evidence for a contribution to the muon pair spectrum other than the contribution of the QED processes. The excess in the region of the φ, $m\sim 1020$ MeV, was fitted with a theoretical spectrum for φ photoproduction from carbon with subsequent $\varphi\to\mu^++\mu^-$ decay. Additional theoretical rholike resonances were fitted in order to interpret the data in terms of upper limits on cross-section parameters. An outline of these calculations follows.

The cross section for photoproduction of a vector meson V from carbon with subsequent $V\to\mu^++\mu^-$ decay was assumed to be[3]

$$\frac{d\sigma}{dtdm^2d\Omega^*}=Bf(t)N\frac{m_v\Gamma}{(m^2-m_v^2)^2+m_v^2\Gamma^2}\times\left(\frac{m_v}{m}\right)^4\frac{3}{16\pi}(1+\cos^2\theta^*). \quad (1)$$

m and t were defined earlier. Ω^* and θ^* are solid and polar angle (in the μ-pair rest frame) of one of the decay muons with respect to the direction of the incident photon. m_v and Γ are central mass and width of the vector meson. (In our analysis Γ is approximated as being independent of m.) B is the branching ratio of V into μ pairs. N normalizes the mass distribution of V:

$$N\int_{(m_v-5\Gamma)^2}^{(m_v+5\Gamma)^2}dm^2\frac{m_v\Gamma}{(m^2-m_v^2)+m_v^2\Gamma^2}=1. \quad (2)$$

In the factor $f(t)\equiv C_1e^{-b_1t}+C_2e^{-b_2t}$, the first term represents coherent vector-meson photoproduction from the carbon nucleus; the second term describes incoherent production from single nucleons. C_1+C_2 is the extrapolated value $(d\sigma/dt)_{t=0}$ for carbon. C_2 was set equal to 12 times the value of $(d\sigma/dt)_{t=0}$ obtained for V production from hydrogen. Free-proton kinematics were used in calculating the incoherent contribution.

A theoretical $\varphi\to\mu^++\mu^-$ spectrum was calculated assuming $m_v=1018.6$ MeV, $\Gamma=3.5$ MeV, $b_1=58$ BeV^{-2}, $b_2=8$ BeV^{-2}, $C_1+C_2=0.343$ mb BeV^{-2},[14] and $C_2=0.0192$ mb BeV^{-2}.[15] The resulting muon pair yield as a function of m, with the

$\varphi\to\mu^++\mu^-$ branching ratio B as an adjustable parameter, will be denoted by $BY_\varphi(m)$. The sum of the calculated QED contributions will be denoted by $Y_Q(m)$. A small contribution, denoted by $Y_\rho(m)$, resulting from $\rho\to\mu^++\mu^-$ decays was also calculated (see Table I). The expression $C[Y_Q(m)+Y_\rho(m)+BY_\varphi(m)]$ was fitted to the data with C and B as adjustable parameters. The values $C=1.02\pm0.03$ and $B=(2.17\pm0.45)\times10^{-4}$ were obtained, where only 1 standard deviation (1 s.d.) statistical errors are included. (χ^2/deg of freedom $=25.9/26$.) The magnitude of C_2, the contribution of the incoherent φ photoproduction from carbon, is uncertain. Therefore, C_2 was assigned an error of ±50%. This produces an uncertainty in B of ∓10%. $Y_\rho(m)$, the $\rho\to\mu^++\mu^-$ background near the φ, was assigned an error of ±50% due to uncertainty in the shape of the ρ mass spectrum. B was found to vary ∓7% for this uncertainty. Similarly, $Y_Q^N(m)$ was assigned a ±50% error, resulting in ±15% variations in B. These variations were taken to be the main sources of systematic error in B. The statistical and systematic errors in B were added in quadrature. Thus, assuming $C_1+C_2=0.343$ mb BeV^{-2}, the $\varphi\to\mu^++\mu^-$ branching ratio is $B=(2.17\pm0.60)\times10^{-4}$.[16]

We may compare this result with other measurements. An analysis of an earlier muon pair photoproduction experiment resulted in $B=(2.34\pm1.01)\times10^{-4}$[5] assuming $C_2=0$; our corresponding value for $C_2=0$ is $B=(2.60\pm0.68)\times10^{-4}$, in excellent agreement with this earlier value. Our result $B=(2.17\pm0.06)\times10^{-4}$ is 12% larger than the results reported by a Cornell group for photoproduction of $\varphi\to\mu^++\mu^-$ from carbon.[17] The data agree with the value $B=(2.9\pm0.8)\times10^{-4}$ obtained for the $\varphi\to e^++e^-$ branching ratio in electron pair photoproduction.[14] However our value of B is over 2 s.d. smaller than the e^-e^+ colliding-beam value from Orsay,[18] $B=(3.73\pm0.25)\times10^{-4}$, and over 1 s.d. smaller than the value from Novosibirsk,[19] $B=(3.4\pm0.4)\times10^{-4}$.[20]

With the φ and QED as landmarks we next proceed to determine our sensitivity to heavier vector mesons. Upper limits were placed on the quantity $B(C_1+C_2)$ for representative computer-generated V meson spectra centered at $m_v=1400$ and 1600 MeV. The cross-section parameters of these theoretical resonances were set equal to those of the ρ: $\Gamma=120$ MeV, $b_1=48$ BeV^{-2}, and $b_2=8$ BeV^{-2}. We used the ρ parameters for carbon, $C_1+C_2=11.7$ mb BeV^{-2} and $C_2=1.56$ mb BeV^{-2},[14,21] to determine the ratio C_2/C_1 which was used for high-mass resonances. 2-s.d. upper limits obtained from the data were $B(C_1+C_2)<0.092\times10^{-4}$ mb BeV^{-2} for $m_v=1400$ MeV and $B(C_1+C_2)<0.073$ mb BeV^{-2} for $m_v=1600$ MeV. Figure 1(b) shows spectra corresponding to these upper limits. For the ρ, in comparison, $B(C_1+C_2)\approx10\times10^{-4}$ mb BeV^{-2}, using the ρ-ω phase recently measured.[22] Thus these upper limits are approximately 100 times smaller than $B(C_1+C_2)$ for the ρ. (If $C_2=0$ the upper limits increase by ≈30%.)

These limits may be translated into limits on coupling constants $em_v^2/2\gamma_v$ of the photon to heavy vector mesons V. If vector dominance holds and the V-carbon scattering amplitude is equal to the ρ-carbon amplitude one obtains $(\gamma_\rho/\gamma_v)^4=[B_v(C_1+C_2)_v\Gamma_v m_\rho]/[B_\rho(C_1+C_2)_\rho\Gamma_\rho m_v]$. Using $m_\rho=765$ MeV, $\Gamma_\rho=120$ MeV, and $B_\rho(C_1+C_2)_\rho=10\times10^{-4}$ mb BeV^{-2} we obtain 1 s.d. upper limits: $(\gamma_\rho/\gamma_v)^2<0.05$ for $m_v=1400$ MeV and $(\gamma_\rho/\gamma_v)^2<0.04$ for $m_v=1600$ MeV. (Setting $C_2=0$ increases these upper limits by a factor ≈2.) The experiment of McClellan et al.[2] on $\pi^+\pi^-$ photoproduction has given $(\gamma_\rho/\gamma_v)^2<1/240$ at $m_v=1400$ MeV, making the additional assumption that $\Gamma_v=\Gamma_{v\to\pi^+\pi^-}=100$ MeV. Since we do not know that $\Gamma_v=\Gamma_{v\to\pi^+\pi^-}$ this upper limit can be expressed as $(\gamma_\rho/\gamma_v)^2(\Gamma_{v\to\pi^+\pi^-}/\Gamma_v)<1/240$. Our upper limit, although larger than the value of McClellan et al. by a factor ≈10, is not dependent on assumptions regarding the ratio $\Gamma_{v\to\pi^+\pi^-}/\Gamma_v$.

An additional fit was performed in order to parametrize the extent to which the data agree with QED theory. The theoretical form

$$C[(1+\beta m^4)Y_Q(m)+Y_\rho(m)] \quad (3)$$

was fitted to the data in the interval 1170 MeV $<m<1770$ MeV where the $\varphi\to\mu^++\mu^-$ contribution is zero and the $\rho\to\mu^++\mu^-$ contribution is small. (In symmetric lepton-pair photoproduction the term proportional to βm^4 represents a possible breakdown of QED for the virtual lepton far off its mass shell.) The results of this fit were $C=1.14\pm0.08$ and $\beta=0.037\pm0.022$ BeV^{-4} (1-s.d. statistical errors). Here χ^2/deg of freedom $=17.4/18$. Using $\beta=-m^4/\Lambda^4$ we find a 2-s.d. lower limit of $\Lambda>1.9$ BeV. Similarly, the limit of Hayes et al.[23] is $\Lambda>2.3$ BeV and the limit of Alvensleben et al.[24] is $\Lambda>1.7$ BeV.

The above value of β is considerably nearer to zero than the values $\beta=-0.80\pm0.43$ BeV^{-4} and $\beta=-1.6\pm0.7$ BeV^{-4} obtained in earlier experiments on muon pair photoproduction performed by this group at lower invariant masses.[8]

We wish to thank the staff of the Cambridge Electron Accelerator for their aid in this experiment. We also wish to acknowledge the valuable contributions of Dr. B. Gottschalk.

†Work supported in part by U. S. National Science Foundation, Contract No. GP9217.

*Now at Brookhaven National Laboratory, Upton, N. Y.

‡On leave at Harvard University, Cambridge, Mass.

[1]See, for example, J. A. Shapiro, Phys. Rev. 179, 1345 (1969).

[2]N. Hicks *et al.*, Phys. Lett. 29B, 602 (1969); G. McClellan *et al.*, Phys. Rev. Lett. 23, 718 (1969).

[3]J. K. de Pagter *et al.*, Phys. Rev. Lett. 16, 35 (1966).

[4]S. Hayes *et al.*, Phys. Rev. Lett. 22, 1134 (1969).

[5]K. M. Moy *et al.*, in *International Symposium on Electron and Photon Interactions at High Energies, Liverpool, England, 1969*, edited by D. W. Braben (Daresbury Nuclear Physics Laboratory, Daresbury, Lancashire, England, 1970) (hereafter referred to as "Daresbury Conference"), Abstract No. 63, obtained $B=(2.9\pm1.2)\times10^{-4}$. A more complete analysis of the data, yielded $B=(2.34\pm1.01)\times10^{-4}$, K. M. Moy, thesis, Northeastern University, 1969 (unpublished).

[6]S. Hayes *et al.*, Daresbury Conference, Abstract No. 165.

[7]G. K. Greenhut, R. Weinstein, and R. G. Parsons, Daresbury Conference, Abstract No. 62, and Phys. Rev. D 1, 1308 (1970).

[8]P. L. Rothwell *et al.*, Phys. Rev. Lett. 23, 1521 (1969).

[9]The opening angle formed by the two spectrometers and the iron absorber thickness were increased in order to accept muon pairs of invariant mass between 930 and 1770 MeV and total energy between 4.8 and 5.9 BeV.

[10]W. L. Faissler, F. M. Pipkin, and K. C. Stanfield, Phys. Rev. Lett. 19, 1202 (1967).

[11]S. D. Drell and J. D. Walecka, Ann. Phys. (New York) 28, 18 (1964).

[12]A harmonic well momentum distribution was used. R. Herman and R. Hofstadter, *High-Energy Electron Scattering Tables* (Stanford Univ., Stanford, Calif., 1960).

[13]W. Bartel *et al.*, Phys. Lett. 28B, 148 (1968).

[14]S. C. C. Ting, in *Proceedings of the Fourteenth International Conference on High Energy Physics, Vienna, Austria, 1968*, edited by J. Prentki and J. Steinberger (CERN Scientific Information Service, Geneva, Switzerland, 1968).

[15]R. Anderson *et al.*, Phys. Rev. D 1, 27 (1970).

[16]If new data on phi photoproduction are analyzed assuming $f(t)=C_1e^{-58t}+C_2e^{-8t}$ and result in new values of C_1 and C_2, denoted by C_1' and C_2', then our value of the $\varphi\rightarrow\mu^++\mu^-$ branching ratio should be altered to $B'=B(C_1/C_1')\{1+2.1[0.059-(C_2'/C_1')]\}$.

[17]We have used the value $(d\sigma/dt)_{t=0}=0.343$ mb BeV^{-4} to obtain $B=(1.92\pm0.29)\times10^{-4}$ from the results of S. Hayes, R. Imlay, P. M. Joseph, A. S. Keizer, and P. C. Stein, Phys. Rev. Lett. 25, 393 (1970), since these authors have reported the directly measured quantity $B(d\sigma/dt)_{t=0}$.

[18]J. Perez-y-Jorba, Daresbury Conference.

[19]V. A. Sidorov, Daresbury Conference.

[20]Among possible sources of the discrepancy between our value of B and the colliding-beam values are errors in C_1, C_2, or the assumed t dependence of $f(t)$. The discrepancy is too large to be attributed to ρ-φ interference (Ref. 7). Although the ρ tail may be in error, a generous allowance has been made for this in the error assigned to B. We note that our value of B is in agreement with calculations using octet-broken U(3) symmetry by M. T. Vaughn and K. C. Wali, Phys. Rev. 177, 2199 (1969).

[21]J. G. Asbury *et al.*, Phys. Rev. Lett. 19, 865 (1967).

[22]P. J Biggs *et al.*, Phys. Rev. Lett. 24, 1197 (1970).

[23]S. Hayes *et al.*, Phys. Rev. Lett. 24, 1369 (1970).

[24]H. Alvensleben *et al.*, Phys. Rev. Lett. 21, 1501 (1968).

ERRATUM

PRECISE DETERMINATION OF THE K_L-K_S MASS DIFFERENCE BY THE GAP METHOD (UNIVERSITY OF CHICAGO–UNIVERSITY OF ILLINOIS CHICAGO CIRCLE COLLABORATION). S. H. Aronson, R. D. Ehrlich, H. Hofer, D. A. Jensen, R. A. Swanson, V. L. Telegdi, H. Goldberg, J. Solomon, and D. Fryberger [Phys. Rev. Lett. 25, 1057 (1970)].

On page 1060, second column, last line, the "new CERN experiment" is referred to as Ref. 10. This should be Ref. 11. In addition, since our paper was submitted, the work cited here has appeared in print: M. Cullen et al., Phys. Lett. 32B, 523 (1970).