Coulomb Functions for Reactions of Protons and Alpha-Particles with the Lighter Nuclei

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New tables of coulomb functions are presented along with an introduction to their use. The ranges of parameters covered by the tabulations are those required for the calculation of reactions of protons, deuterons, and alpha-particles with the lighter nuclei, from hydrogen to oxygen, in the energy range of a few Mev. For alpha-particles the tables suffice for treatment of reactions up to about 10 Mev for $Z=9$ (F) and 5 Mev for $Z=2$ (He), while for protons the energy range covered is about 4 times that for alpha-particles. An indication of the principal applications of coulomb functions is given.

I. INTRODUCTION

A PAPER related to the material presented below has been published[1] in the *Physical Review*. It contains a description of special methods of approximation and computational short cuts as well as an offer to supply interested persons with numerical tables. The demand for the latter exceeded expectation. A number of comments concerning the usefulness of the tables and the desirability of a printed edition led to the submission of the appended material to the Editor of the *Reviews of Modern Physics*. It appeared proper to precede the tabulations by a brief description of the principal applications.

Notation and Units

(a) Physical quantities

Unit of mass = mass of neutral atom of the isotope $O^{16}/16$.

$M(O^{16})$ = unit of mass expressed in grams = (mass of neutral atom of the isotope O^{16} in grams)/16.

Unit of energy = 1 Mev.

M_i = mass of incident particle.

M_b = mass of bombarded particle.

Z, Z' = atomic numbers of colliding particles.

Z_1, Z_2 = atomic numbers of disintegration products for disintegrations giving rise to two fragments.

M_1, M_2 = masses of disintegration products for disintegrations giving rise to two fragments.

$\eta = ZZ'e^2/\hbar v$, where v is the relative velocity of the colliding particles.

$k = \mu v/\hbar$, where μ is the reduced mass.

$\rho = kr$, where r is the interparticle separation.

$a = \hbar^2/(ZZ'\mu e^2)$.

E_{Mev} = energy of the incident particle in Mev.

e = electronic charge.

m = electronic mass.

c = velocity of light.

$\hbar$ = Planck's constant/(2π).

$L\hbar$ = angular momentum.

Q = energy evolved in a reaction.

σ_L = partial cross section for a reaction.

Γ_i = disintegration constant for the ith mode of disintegration.

(b) Functional symbols and mathematical abbreviations

$\Gamma(x)$ = gamma-function of x.

$\boldsymbol{\sigma}_L = \arg\Gamma(L+1+i\eta)$.

F_L = regular coulomb function, otherwise defined by being a solution of

$$(d^2F_L/d\rho^2)+[1-(2\eta/\rho)-L(L+1)/\rho^2]F_L=0$$

and having as its asymptotic form

$$F_L \sim \sin(\rho-\tfrac{1}{2}L\pi-\eta\ln 2\rho+\boldsymbol{\sigma}_L)$$

at $\rho=\infty$.

G_L = irregular coulomb function satisfying the same differential equation as F_L, otherwise defined by its asymptotic form

$$G_L \sim \cos(\rho-\tfrac{1}{2}L\pi-\eta\ln 2\rho+\boldsymbol{\sigma}_L).$$

$$C_L=\{2^L/(2L+1)!\}\times\{[L^2+\eta^2][(L-1)^2+\eta^2]\cdots[1^2+\eta^2]\}^{\frac{1}{2}}C_0.$$

$$C_0=[2\pi\eta/(e^{2\pi\eta}-1)]^{\frac{1}{2}}.$$

$$D_L=1/[(2L+1)C_L].$$

Φ_L, Θ_L = quantities defined by $F_L=C_L\rho^{L+1}\Phi_L$, $G_L=D_L\rho^{-L}\Theta_L$.

Φ_L^*, Θ_L^* = quantities defined by $F_L'=C_L\rho^L\Phi_L^*$, $G_L'=D_L\rho^{-L-1}\Theta_L^*$, where the prime signifies differentiation with respect to ρ.

$A_L=|F_L^2+G_L^2|^{\frac{1}{2}}$ = amplitude of the phase amplitude method.

φ_L = phase of the phase amplitude method, defined by $F_L=A_L\sin\varphi_L$, $G_L=A_L\cos\varphi_L$ with the additional requirement $\varphi_L=0$ when $\rho=0$.

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[1] Bloch, Hull, Broyles, Bouricius, Freeman, and Breit, Phys. Rev. 80, 553 (1950).

II. APPLICATIONS

1. Values of the Coulomb Function Parameters

In the following formulas, the bombarded particles will be supposed to be at rest:

$$\eta=0.1574ZZ'E_{\text{Mev}}^{-\frac{1}{2}}M_i^{\frac{1}{2}}, \quad (1)$$

$$\rho\eta=r/a=ZZ'\mu r/(2.905\times10^{-12}\text{ cm}), \quad (2)$$

$$\mu=\text{reduced mass}=M_iM_b/(M_i+M_b). \quad (3)$$

The values of the fundamental constants used above are such that

$$\hbar/[M(\text{O}^{16})mc^2]^{\frac{1}{2}}=0.904(3)\times10^{-12}\text{ cm}, \quad (4)$$

and

$$\rho\eta=0.3113\mu ZZ'r_N=0.0969(2)\mu ZZ'(rmc^2/e^2), \quad (5)$$

where r_N is the internuclear distance measured in $\hbar/[M(\text{O}^{16})mc^2]^{\frac{1}{2}}$.

If the reaction causes disintegration into two fragments having masses M_1, M_2 with energy release Q, then the value of η for the end products is

$$\eta=0.1574Z_1Z_2(\mu'/E_{\text{Mev}}')^{\frac{1}{2}}, \quad (6)$$

where

$$\mu'=M_1M_2/M \quad (7)$$

is the reduced mass of the second stage of the reaction and

$$M=M_i+M_b=M_1+M_2 \quad (8)$$

is the total mass. The quantity E' is the energy available to the second stage of the reaction of the disintegration. In terms of the energy release Q,

$$E'=(M_bE/M)+Q. \quad (9)$$

The numerical values used above are not significant in the last digit on account of uncertainties in the fundamental physical constants. The object in supplying the extra digit is to avoid undue accumulation of errors and inconsistencies between different formulas.

2. Values of the Wave Functions at the Nuclear Surface

For an assumed model of the nuclei one can obtain values of wave functions at the nuclear boundary which correspond to preassigned conditions for the collision. The simplest case of absence of spin-orbit coupling will be dealt with below. Formulas for the general case are more involved. The modifications owing to the identity of particles can be found in standard texts.

The wave function which represents the collision between two charged particles interacting only through their coulomb fields can be written[2] as

$$\begin{aligned}\psi^c&=\Sigma_0^\infty i^L(2L+1)P_L(\cos\theta)\exp(i\sigma_L)F_L/\rho\\&=e^{-(\pi\eta/2)+ikz}\Gamma(1+i\eta)M(i\eta;\,1;\,ik(r-z)),\end{aligned} \quad (10)$$

where F_L is the regular coulomb function,

$$\sigma_L=\arg\Gamma(L+1+i\eta)$$

and M is the confluent hypergeometric series. Here the direction of propagation is along the z axis, θ is the angle between the z axis and the line joining the point $r=0$ to the point at which ψ^c is desired. The P_L are Legendre functions of order L. This wave function contains only the relative coordinates of the particles and is referred to as the wave function for relative motion. It is normalized so as to give unit density at infinity in the space of the relative coordinates. This normalization corresponds to one target nucleus being bombarded by a stream of incident particles having unit density at infinity. At large distances the function represented by Eq. (10) has an asymptotic behavior very similar to a plane wave of unit amplitude. It has furthermore been shown by Gordon[2] that the asymptotic form of Eq. (10) represents the limit approached by a wave function inside a big sphere outside of which the coulomb field is neutralized by a suitable volume distribution of charge. As the radius of Gordon's screening sphere is made to approach ∞, the wave function outside the sphere gives intensities approaching those predicted by the dominant terms in the asymptotic form of Eq. (10). In this sense, the coulomb field solution of Mott and Gordon[2] represents conditions for collisions between neutral atoms.

Phase shifts K_L in the coulomb functions F_L modify the Mott-Gordon solution so that it becomes

$$\psi=\sum_{L=0}^{\infty} i^L(2L+1)P_L(\cos\theta)\exp(i\sigma_L)\mathfrak{F}_L/\rho, \quad (11)$$

where

$$\mathfrak{F}_L=F_L+(G_L+iF_L)e^{iK_L}\sin K_L. \quad (12)$$

Here G_L is the irregular coulomb function. Asymptotically for large r, one finds

$$\mathfrak{F}_L\sim e^{iK_L}\sin[\rho-(L\pi/2)-\eta\ln2\rho+\sigma_L+K_L]. \quad (13)$$

The asymptotic behavior of ψ at large distances is, therefore,

$$\psi\sim\psi^c+\Sigma_0^\infty[(2L+1)/\rho]P_L\sin K_L \times\exp\{i[\rho-\eta\ln2\rho+2\sigma_L+K_L]\}, \quad (13')$$

and the scattered wave is

$$\begin{aligned}\psi^s=&-[\eta/k(r-z)]\exp\{i[kr-\eta\ln k(r-z)+2\sigma_0]\}\\&+\Sigma_0^\infty[(2L+1)/\rho]P_L\sin K_L\\&\times\exp\{i[\rho-\eta\ln2\rho+2\sigma_L+K_L]\}.\end{aligned} \quad (14)$$

[2] The general theory is due to Lord Rayleigh (*Theory of Sound*, II, 323), H. Faxén and J. Holtsmark, Z. Physik **45**, 307 (1927); N. F. Mott, Proc. Roy. Soc. (London) **A118**, 542 (1928); W. Gordon, Z. Physik **48**, 180 (1928); and a complete account of it is found in N. F. Mott and H. S. W. Massey, *The Theory of Atomic Collisions* (Oxford University Press, London, 1933).

The knowledge of the scattered wave suffices for the determination of the phase shifts. Suitable symmetrization gives the necessary modifications for the treatment of identical particles.[3]

In application to the calculation of intensities the

$$\sigma_L = \arg\Gamma(L+1+i\eta) \tag{15}$$

occur only in the combinations

$$\sigma_L - \sigma_N = \arg[\Gamma(L+1+i\eta)/\Gamma(N+1+i\eta)], \tag{16}$$

and these quantities are obtainable in terms of elementary functions. Thus, e.g.,

$$\sigma_L - \sigma_0 = \Sigma_{s=1}{}^L \tan^{-1}(\eta/s). \tag{17}$$

Under some conditions the internal properties of the nuclear system (compound nucleus) determine the shape of the wave function inside a sufficiently large volume in the space of the relative coordinates. The shape of the wave function determines the ratio of the values of the function at different points in the configuration space of the composite system formed by the two colliding nuclei. By referring to the knowledge of the shape only it is customary to emphasize the fact that the normalization is not known. A situation of this type is obtained in the "one-body" model of the collision process. Under such conditions the phase shifts K_L are determined completely by regularity of the function inside the nucleus. This circumstance may be seen either by recalling that the radial functions can be continued to an infinite distance and that the phase shift is determined by the asymptotic behavior without knowledge of the normalization; or else one can employ formulas giving the phase shift in terms of logarithmic derivatives. In the general case the shape of the wave function is not known without further specification of its behavior at large distances. In such cases as the reactions represented by

$$\mathrm{Li}^7 + \mathrm{H}^1 \rightleftharpoons \mathrm{He}^4 + \mathrm{He}^4, \tag{18}$$

there exist relations[4] connected with the principle of detailed balance which restrict the scattered amplitudes and it has proved possible to discuss by means of considerations in the configuration space of the whole system typical conditions suggested by experiment[5] and to study conditions for resonance[6] as well as general expansions in terms of properties of wave functions at the surface of a sphere of approximately the radius of the compound nucleus.[7] It has also proved possible to deal with some features of the problem by endowing the nuclear matter with an absorption coefficient[8] for waves representing relative motion of colliding particles. In these formulations it is convenient and useful to have available a mathematical connection between the phase shifts and properties of the compound nucleus.

For an arbitrarily chosen point in configuration space the wave function is many dimensional and in the general case it cannot be reduced to a product of factors involving smaller numbers of dimensions. For parts of configuration space which correspond to the existence of well-defined disintegration products in well-defined stationary states the wave function can be represented, however, as a product of four factors: the function representing the motion of the center of mass, the two functions representing the states of internal motion within each fragment, and the function representing the relative motion of the two fragments with respect to each other. Such a part of configuration space is often referred to as a "channel."[6] Within a channel the problem is essentially one-dimensional. The connection between phase shift and internal properties of the compound nucleus may be stated, therefore, in terms of the shape of the factor in the formula for the wave function which has reference only to the relative motion of the two fragments with respect to each other. This connection is the same as for the one-body problem. Convenient formulas essentially equivalent to

$$\tan K_L = (\mathfrak{F}_L F_L' - \mathfrak{F}_L' F_L)/(\mathfrak{F}_L' G_L - \mathfrak{F}_L G_L'), \tag{19}$$

with a prime indicating differentiation with respect to ρ, can be found in the literature.[9] Other convenient forms for joining internal and external functions are obtained from the application of W. E. Milne's phase-amplitude method to the present problem made by John A. Wheeler.[10]

[3] N. F. Mott, Proc. Roy. Soc. (London) **A126**, 259 (1930); J. R. Oppenheimer, Phys. Rev. **32**, 361 (1928); H. M. Taylor, Proc. Roy. Soc. (London) **A134**, 103 (1931); **A136**, 605 (1932).

[4] J. A. Wheeler, Phys. Rev. **52**, 1107 (1937).

[5] G. Breit and F. L. Yost, Phys. Rev. **47**, 508 (1935); **48**, 203 (1935); N. Bohr, Nature **137**, 344 (1936); G. Breit and E. P. Wigner, Phys. Rev. **49**, 519 (1936); H. Bethe and G. Placzek, Phys. Rev. **51**, 450 (1937); H. Bethe, Revs. Modern Phys. **9**, 69 (1937); Kalckar, Oppenheimer, and Serber, Phys. Rev. **52**, 273 (1937); E. J. Konopinski and H. A. Bethe, Phys. Rev. **54**, 130 (1938).

[6] G. Breit, Phys. Rev. **40**, 127 (1932); **58**, 506, 1068 (1940); **69**, 472 (1946); P. L. Kapur and R. Peierls, Proc. Roy. Soc. (London) **166**, 277 (1938); R. Peierls, Proc. Cambridge Phil. Soc. **44**, 242 (1947); A. J. F. Siegert, Phys. Rev. **56**, 750 (1939); W. Kahn, Phys. Rev. **74**, 1763 (1948).

[7] E. P. Wigner, Phys. Rev. **70**, 15 (1946); **70**, 606 (1946); E. P. Wigner and L. Eisenbud, Phys. Rev. **72**, 29 (1947); T. Teichmann, Phys. Rev. **77**, 506 (1950); R. F. Christy and R. Latter, Revs. Modern Phys. **20**, 185 (1948).

[8] Ostrofsky, Breit, and Johnson, Phys. Rev. **49**, 22 (1936); Feshbach, Peaslee, and Weisskopf, Phys. Rev. **71**, 145 (1947); H. Feshbach and V. F. Weisskopf, Phys. Rev. **76**, 1550 (1949).

[9] First reference in footnote 3, first reference in footnote 5, various forms and discussion in the third reference in footnote 6.

[10] John A. Wheeler, Phys. Rev. **52**, 1123 (1937). See also Sec. VIII, reference 1, for several useful formulas in this connection.

3. Connection with Resonance Theory

In the one-body case one has the relation[11]

$$\frac{E}{\Gamma} \cong k\int_0^b |\mathfrak{F}_L|^2 dr + \left[\frac{G_L^2 E\partial}{k\partial E}\frac{\partial G_L}{G_L \partial r}\right]_{r=b} \qquad (20)$$

between the half-value breadth 2Γ and the probability of the distance between the two particles being smaller than b. The part outside the integral in Eq. (20) can be made relatively small by choosing b somewhat outside the repulsive barrier. In Eq. (20) the quantities are supposed to be evaluated at resonance, and the designation of the half-value breadth as 2Γ is used because in a convenient approximation $-i\Gamma$ may be used as the imaginary part of a complex energy which is a convenient generalization of the real energies of stationary states to the quasi-stationary states of resonance theory. The integral in Eq. (20) is written as a one-dimensional integral so as not to complicate the notation. It is replaced in general, however, by a many-dimensional integral over the configuration space of the complete problem. Within the approximation of small probability of escape along the disintegration channels, other than the particular channel considered for incidence, it is consistent to cut off the integration at the opening of the disintegration channels and to use for the internal function the continuation of the function which contains ($\mathfrak{F}_L$) resonance as the factor for relative motion in the four-factor many-dimensional function of the channel representing incidence.

If the effect of escape along the disintegration channels cannot be neglected it becomes impossible to satisfy the one-body resonance condition $(\mathfrak{F}_L'/\mathfrak{F}_L)-G_L'/G_L=0$ exactly. At most, one can reduce this difference to a minimum. The resonance width is in this case approximately determined by the mean life of the resonance state, taking into account escape along channels. The resonance width is then approximately the sum of the widths calculated for each channel separately, in accordance with the interpretation of Eq. (20) in terms of the continuation of the one variable function which has just been discussed. The application of the Heisenberg uncertainty principle to time and energy implied in this approximate view of the resonance width has its limitations but its correctness can be substantiated by more explicit considerations. It then turns out that level widths and disintegration probabilities are related to each other by formulas somewhat different from the simple one

$$\Gamma = \Sigma\Gamma_i, \qquad (21)$$

in which the sum is taken over all disintegration constants. In the case of sharp resonance, however, the exact relations approach Eq. (21) as a limit.

4. Special Cases

The general usefulness of coulomb functions for consideration of nuclear reactions in an elementary manner can be illustrated by the construction of some simple models and extreme cases.[6] The partial cross section for disintegration on the one-body model without spin and without a phenomenological extinction coefficient of the incident wave is[12]

$$\sigma_L = \frac{4\pi\mathcal{P}_L b^3}{v}\frac{(2L+1)(F_L^2/\rho^2)\langle u_L^2\rangle}{(1-F_L G_L \delta_L)^2 + F_L^4 \delta_L^2}, \qquad (22)$$

where

$$\langle u_L^2\rangle = \int_0^b w_L u_L^2 dr; \quad \int_0^b w_L(r)dr = 1, \qquad (22')$$

and

$$\delta_L = (F_L'/F_L) - \mathfrak{F}_L'/\mathfrak{F}_L. \qquad (22'')$$

The conventions and notation are as follows: b is the radius of a sphere within which the presence of the incident particle is essential for inducing the disintegration under consideration, $\mathcal{P}_L$ is the probability per second that if the incident particle is within a sphere of radius b the disintegration will occur, $w_L(r)dr$ is the relative intrinsic probability of inducing the disintegration in dr at r, v is the relative velocity of the two colliding particles, u_L is the wave function for relative motion of the colliding particles in $0<r<b$ normalized so as to be unity at $r=b$. The model leading to this formula is decidedly oversimplified and takes no explicit account of resonances having their origin in the cooperative action of many nuclear particles. Such action can be partially taken into consideration by allowing $\mathcal{P}_L$ to be variable. In addition, Eq. (22) does not bring in effects of diminution in the intensity of the incident wave in the nuclear interior which are caused by the formation of disintegration products and by excitation of one or the other of the two colliding particles. For very low energies the asymptotic behavior of the right

[11] G. Breit and F. L. Yost in reference 5, and G. Breit and E. P. Wigner in reference 5.

[12] Ostrofsky, Breit, and Johnson, Phys. Rev. 49, 22 (1936). Equation (12) of this reference became distorted through the replacement of a proportionality sign by the sign of approximate equality. The intention was to include on the right side of Eq. (12) in OBJ only the more characteristic factors. Equations (23) and (23′) of the text above are somewhat simpler, however, and include all constant factors.

side of Eq. (22) is

$$\sigma_L \sim \frac{2^{2L+3}(2L+1)\pi^2}{[(2L)!]^2} \times \left\{ \frac{\mathcal{P}_L b^3 (r/a)^{2L} \langle u_L \rangle^2 / \Theta_L^2}{[(\rho \mathfrak{F}_L'/\mathfrak{F}_L) - (\rho G_L'/G_L)]^2} \right\}_{E=0} \frac{\eta}{v} e^{-2\pi\eta}. \quad (23)$$

At $E=0$, Θ_L may be expressed in terms of K_{2L+1}, the bessel function of imaginary argument of the second kind.[13] When this expression is employed, Eq. (23) becomes

$$\sigma_L \sim (2L+1)\pi^2 \left\{ \frac{\mathcal{P}_L b^3 \langle u_L^2 \rangle / (r/a)}{[(\rho \mathfrak{F}_L'/\mathfrak{F}_L) - (\rho G_L'/G_L)]^2} \right\}_{E=0} \times \frac{(\eta/v) e^{-2\pi\eta}}{[K_{2L+1}(x)]^2}, \quad (23')$$

where

$$x^2 = 8r/a. \quad (23'')$$

These relations show[12] that at sufficiently low energies the main variation in σ_L is given by the factor

$$(1/v^2) e^{-2\pi\eta}$$

independently of the value of L. The conclusion holds quite generally[12] also in cases of finite absorption in the nucleus.

For $L=0$ the consideration of the absorption of the incident wave leads to

$$\sigma = 2\pi(\mathcal{P}/v)[(Sh/k_1') - s/k_0]\{|k'|^2 (Ch+c)(G^2+F^2) + k^2(Ch-c)(G'^2+F'^2) - 2ks[k_0'(GG'+FF')+k_1'] - 2kSh[k_1'(GG'+FF')-k_0']\}^{-1}, \quad (24)$$

where

$$k' = k_0' + ik_1' \quad (25)$$

is the complex wave number in the nuclear interior and

$$Ch = \cosh 2k_1'b, \quad Sh = \sinh 2k_1'b, \quad c = \cos 2k_0'b, \quad s = \sin 2k_0'b. \quad (25')$$

If all the absorption is caused by the disintegration under consideration, then one may connect k_0', k_1' by

$$k_0' + ik_1' = (2\mu/\hbar^2)^{\frac{1}{2}} [E - V + i\hbar\mathcal{P}/2]^{\frac{1}{2}}.$$

In the case of very strong damping of the incident wave in the nuclear interior the partial cross section becomes

$$\sigma_L = 2\Lambda\Lambda_0(2L+1)/(F_L^2+G_L^2), \quad (26)$$

where

$$\Lambda_0 = (\hbar/2\mu\mathcal{P}_L)^{\frac{1}{2}} \quad \text{and} \quad \Lambda = \hbar/(2\mu E)^{\frac{1}{2}}. \quad (26')$$

The quantity $\mathcal{P}_L$ has the same meaning as in Eq. (22). It has been supposed here that all of the damping is caused by the disintegration in question. In the general case of many sources of damping, the right side of Eq. (26) should be multiplied by the ratio of the number of reactions of a specified type to the total number of reactions. The approximation of Eq. (26) is that of an absorption so strong that the wave decays to a small fraction of its value at the surface by the time it reaches the center. In addition, it is supposed that $k_1' \gg k_0'$. The wave function then has the form

$$\mathfrak{F} = \text{const} \exp\{(\mu\mathcal{P}/\hbar)^{\frac{1}{2}}(1+i)r/2^{\frac{1}{2}}\}$$

and

$$\mathfrak{F}_{r=b} \cong (k^2\hbar/\mu\mathcal{P})/(G^2+F^2)_{r=b}. \quad (27)$$

The form under discussion is very similar to that used by R. F. Christy and R. Latter.[14] It is seen that the consideration of this extreme case makes it reasonable to consider $1/(G_L^2+F_L^2)$ at the nuclear surface as a measure of barrier penetration effects. On the other hand, it will be noted that relations (26), (27) are approximate only and that in general F_L and G_L enter also in other combinations.

Quite apart from the extinction coefficient approximation, one can examine typical cases from the standpoint of the many-dimensional wave equation. It is then found[15] that under some conditions the damping constant Γ depends mostly on $E^{\frac{1}{2}}/g^2$ and under other conditions mostly on $f^2/E^{\frac{1}{2}}$.

Here f, g are linear combinations of F, G chosen in such a way as to have $f = F\cos K' + G\sin K'$, $g = G\cos K' - F\sin K'$ outside the compound nucleus. The phase shift K' is chosen in order to correspond to a one-body approximation of the problem. This approximation is made use of so as to secure more rapid convergence of the calculation which is intended to take into account the many-body character of the process. Subscripts L are dropped here, since they are irrelevant to the discussion. Typical of the second category is the case of an interaction localized in a small region of configuration space. The damping constant may then be represented as the product of two factors, one of which has reference only to the behavior of the interior of the compound nucleus in releasing the disintegration products, the

[13] Yost, Wheeler, and Breit, Phys. Rev. **49**, 174 (1936), Eq. (36). For an extension the expansion of Θ_L in terms of $K_{2L+1}(x)$ to finite energies, see G. Breit and M. H. Hull, Jr., Phys. Rev. **80**, 392 and 561 (1950).

[14] R. F. Christy and R. Latter, Revs. Modern Phys. **20**, 185 (1948).

[15] Second and fourth references in footnote 6.

other factor having the form $f^2/E^{\frac{1}{2}}$. The function f is evaluated at the place where the interaction takes place and it is supposed in the calculation that the value of the interfragment distance can be sufficiently well defined to make such an evaluation definite. A repulsive interaction in a large region of configuration space leads, on the other hand, to $E^{\frac{1}{2}}/g^2$ as the typical dependence.

A very general treatment of the dispersion theory of nuclear reactions has been given by Wigner[7] and by Wigner and Eisenbud.[7] This theory pays special attention to the possibility of expanding the wave function in terms of functions satisfying certain boundary conditions at the nuclear surface and is not especially concerned with the separation of coulomb barrier effects from the disintegration probability in the absence of a barrier. The choice of the dividing surface between the internal and external regions is immaterial within wide limits. This circumstance is, of course, a great advantage. It also implies a certain arbitrariness in the level system for the representation of the results. The theory involves a succession of approximations and it is shown in the work of Wigner and of Wigner and Eisenbud that there is good likelihood that the higher approximations have a very small effect. In this theory it is F^2+G^2 and the derivative of this quantity with respect to distance that are of primary importance. This fact is not in disagreement with the discussion of special cases in which it is sometimes F and sometimes G that is of principal importance. In the special cases results are expressed in terms of resonances of parts of the system so that the coulomb functions enter in the region where the resonating parts are located rather than at a surface surrounding the compound nucleus. It would be out of place to discuss further differences between various forms of the dispersion formulations of nuclear reactions. It is clear that these differences are concerned more with the choice of parameters used to describe the compound nucleus than with joining the internal function to the wave function in the disintegration channels. For the latter consideration the knowledge of coulomb functions becomes indispensable.

III. ARRANGEMENT AND USE OF THE TABLES

The tables collected here have been made up with the general objective of providing values of the desired quantities with an accuracy of one percent. In some cases this accuracy may be obtained by means of linear interpolation; in others parabolic interpolation is required. Free use is made of auxiliary quantities having convenient interpolation properties. The independent variables are ρ and $\log_{10}\eta$. These tables may be considered to be an extension of those published elsewhere.[16]

In general, the functions are tabulated for $L=0$, 1, 2, 3, and 4 over a range of ρ and η suitable for discussing reactions of protons, deuterons, and alpha-particles with the lighter nuclei.

The regular coulomb function F_L occurs frequently in applications and has been tabulated in Tables I to V. For small ρ, especially for higher L, F_L varies too rapidly for accurate interpolation and should be obtained as

$$F_L=C_L\rho^{L+1}\Phi_L, \tag{28}$$

or with the aid of the phase amplitude variables from

$$F_L=A_L\sin\varphi_L. \tag{28'}$$

Here C_L is the coefficient defined in the section on notation. It satisfies the recurrence relation

$$C_L=[L^2+\eta^2]^{\frac{1}{2}}C_{L-1}/[L(2L+1)]. \tag{29}$$

The quantity Φ_L is given in Tables VI to X, A_L in Tables XXXV to XXXIX, and φ_L in Tables XXX to XXXIV.

Since the irregular function G_L is rarely needed directly, it has not been tabulated. It may be obtained by means of the formula

$$G_L=D_L\rho^{-L}\Theta_L, \tag{30}$$

where

$$D_L=1/[(2L+1)C_L] \tag{31}$$

and Θ_L may be calculated as $(\Phi_L\Theta_L)/\Phi_L$. Values of $\Phi_L\Theta_L$ are listed in Tables XXV to XXIX. One may also use the phase amplitude variables and obtain G_L from

$$G_L=A_L\cos\varphi_L. \tag{32}$$

In many applications, however, $\Phi_L\Theta_L$ is more useful, since it occurs in the form

$$F_LG_L/\rho=\Phi_L\Theta_L/(2L+1). \tag{33}$$

For large L and small ρ the quantity $\Phi_L\Theta_L$ has convenient interpolation properties, while for larger values of ρ it is more convenient to deal with A_L and φ_L.

Since G_L' is connected with F_L', F_L, G_L through the

[16] Yost, Wheeler, and Breit, Phys. Rev. **49**, 174 (1936), and J. Terr. Mag. and At. El. **40**, 443 (1936); Breit, Condon, and Present, Phys. Rev. **50**, 825 (1936); Breit, Thaxton, and Eisenbud, Phys. Rev. **55**, 1018 (1939); E. R. Wicher, J. Terr. Mag. Atmos. Elec. **41**, 389 (1936); J. A. Wheeler, Phys. Rev. **52**, 1123 (1937); P. P. Pavinsky, J. Exp. Theoret. Phys. **9**, 411 (1939) (in Russian).

Wronskian

$$F_L'G_L - G_L'F_L = 1, \quad (34)$$

it is not needed in the applications and no tabulations of this quantity have been made. It is necessary, however, to have the equivalent of either F_L' or G_L' in all applications involving the joining of coulomb functions to internal nuclear functions. In this connection F_L' may be obtained as

$$F_L' = C_L \rho^L \Phi_L^*, \quad (35)$$

where values of Φ_L^* are given in Tables XVI to XIX. The quantity

$$\rho F_L'/F_L = \Phi_L^*/\Phi_L \quad (35')$$

occurs frequently in applications and is available in Tables XX to XXIV.

The interpolation properties of

$$[\eta^{(3-2\delta_{L,0})}]^{\frac{1}{2}} \exp[-(9\rho\eta)^{\frac{1}{2}}]\Phi_L \quad (36)$$

are better than those of Φ_L for some portions of the region covered. In Tables XI to XV the values of this quantity are listed. Parabolic interpolation may often be avoided by utilizing these tables. The symbol $\delta_{L,0}$ stands for 1 when $L=0$ and 0 otherwise.

For arbitrarily chosen values of ρ and η the application of the tables requires bivariate interpolation. It is frequently possible, however, to arrange calculations so that only a less time consuming interpolation against one independent variable is required. Thus, for example, an investigation of the expected value of a nuclear collision cross section between two energy values does not usually require accurate values of the cross section at preassigned energy values. It frequently suffices to make the calculations for the values of η which are used in the tables. The values of ρ corresponding to the nuclear radius and the tabular values of η are then computed and interpolations against the one variable ρ suffice. The roles of ρ and η may be interchanged.

In deciding on a detailed plan of a calculation it is convenient to have a simple criterion for estimating the accuracy of linear interpolation of a tabulated quantity against either ρ or $\log_{10}\eta$. The rule stating that the error in linear interpolation is seldom greater than one-eighth of the absolute value of the second difference is helpful.

In the lower right-hand corner of most pages containing tables there is a note concerning interpolability of the tabulated quantity. These notes refer to single or double full lines drawn in the body of the tables. Notes concerning accuracy of the tabulated values are inserted in the lower left-hand corner of each page. Reference is made in these notes to the position of entries with respect to dashed lines drawn in the body of the tables. The "check values" mentioned in the notes on accuracy have usually been obtained by an independent method.

For use in the following examples the following "interpolation fractions" are defined:

$$u_\eta \equiv \frac{\log_{10}\eta - \log_{10}\eta_1}{\log_{10}\eta_2 - \log_{10}\eta_1}, \quad u_\rho \equiv (\rho-\rho_1)/(\rho_2-\rho_1), \quad (37)$$

where η_1 and η_2 are the tabular values of η immediately below and immediately above the value of η for which the functions are desired. The quantities ρ_1 and ρ_2 have similar meanings.

Example 1

Find F, G, and $\rho F'/F$ for $L=2$, $\eta=0.3863$, $\rho=0.7563$. Since neither ρ nor η are tabular values, bivariate interpolation will be necessary. The point $\eta=0.3863$, $\rho=0.7563$ is above the double line on Table VIII, so that Φ_2 may be obtained by linear interpolation in $\log_{10}\eta$ and ρ from this table. Thus

$$u_\eta = \frac{\bar{1}.5869+0.5}{0.1} = 0.869, \quad u_\rho = \frac{0.7563-0.6}{0.2} = 0.782,$$

and employing tabulated values of Φ_2 in

$$\Phi_2(\eta_1, \rho) = (1-u_\rho)\Phi_2(\eta_1, \rho_1) + u_\rho \Phi_2(\eta_1, \rho_2),$$

one has

$$\Phi_2(\eta_1, \rho) = 0.218\times 1.03831 + 0.782\times 1.0398 = 1.0395$$

and

$$\Phi_2(\eta_2, \rho) = 0.218\times 1.05517 + 0.782\times 1.0626 = 1.0610.$$

Interpolation in $\log_{10}\eta$ gives

$$\Phi_2(\eta, \rho) = (1-u_\eta)\Phi_2(\eta_1, \rho) + u_\eta \Phi_2(\eta_2, \rho)$$
$$= 0.131\times 1.0395 + 0.869\times 1.0610 = 1.0582.$$

Employing Eq. (25), one has

$$C_2(\eta) = \frac{1}{30}\left(\frac{4.1492\times 1.1492\times 2\pi\times 0.3863}{e^{2\pi\times 0.3863}-1}\right)^{\frac{1}{2}} = 0.03529.$$

Then Eq. (24) gives

$$F_2(\rho, \eta)=0.03529\times(0.7563)^3\times1.0592=0.01615.$$

The values of ρ, η are within the range of Table XXVII, so $\Phi_2\Theta_2$ can be obtained by linear interpolation from this table in the same manner. Here u_η is the same as before, but $u_\rho=0.391$ in this case, since $\rho_2=1.0$ rather than 0.8 as before. Then

$$\Phi_2\Theta_2(\eta_1, \rho)=1.0215, \quad \Phi_2\Theta_2(\eta_2, \rho)=1.0107,$$

and finally

$$\Phi_2\Theta_2(\eta, \rho)=1.0121.$$

From Eq. (29) one has

$$F_2G_2=\frac{0.7563\times1.0121}{5}=0.15309$$

and

$$G_2=\frac{0.15309}{0.01615}=9.48.$$

The values of ρ and η are above the double line of Table XXII, so that linear interpolation may again be used to obtain Φ_2^*/Φ_2. The values of u_η and u_ρ are the same as for the $\Phi_2\Theta_2$ interpolation, so that

$$\Phi_2^*(\eta_1, \rho)/\Phi_2(\eta_1\rho)=2.9922,$$

$$\Phi_2^*(\eta_2, \rho)/\Phi_2(\eta_2, \rho)=3.0130,$$

and

$$\rho F_2'(\eta, \rho)/F_2(\eta, \rho)=\Phi_2^*(\eta, \rho)/\Phi_2(\eta, \rho)=3.010.$$

Example 2

Find F, G, and $\rho F'/F$ for $L=1$, $\eta=0.7944$, and $\rho=4.461$. The functions are tabulated for this value of η, so that interpolation in ρ only is necessary. The point $\eta=0.7944$, $\rho=4.461$ lies below the double line and to the left of the single line of Table VII, which gives Φ_1, so that F_1 and G_1 are best obtained from A_1 (Table XXXVI) and φ_1 (Table XXXI). Interpolating linearly in ρ, one obtains $A_1=1.1506$ and $\varphi_1=1.8223$. Thus,

$$F_1=1.1506\times\sin(1.8223)=1.114,$$

$$G_1=1.1506\times\cos(1.8223)=-0.2863.$$

Since the point η, ρ of this example falls below the solid line of Table XXI which gives Φ_1^*/Φ_1, it is preferable to obtain Φ_1^* from Table XVII. Linear interpolation gives $\Phi_1^*(\eta, \rho)=0.7515$. Then using Eq. (31), one has

$$\rho F_L'/F_L=C_L\rho^{L+1}\Phi_L^*/F_L,$$

so that

$$\rho F_1'(\eta, \rho)/F_1(\eta, \rho)$$

$$=\frac{(0.07868)\times(4.461)^2\times(0.7515)}{1.114}=1.056,$$

where $C_1=0.07868$ is calculated as in example 1.

Example 3

Find F for $L=0$, $\eta=2.842$, and $\rho=2.714$. This pair of η, ρ-values corresponds to a tabular value below the double line and to the right of the single line in Table VI which gives Φ_0. According to the interpolability note such a value should be obtained with the aid of the auxiliary function $\eta^{\frac{1}{2}}\exp[-(9\rho\eta)^{\frac{1}{2}}]\Phi_0$ of Table XI. This suggestion is confirmed when it is noted that although interpolation in ρ gives accuracy better than the standard one percent, the second difference rule indicates that Table VI may not be interpolated linearly in η in this region to this accuracy. Linear bivariate interpolation in Table XI gives

$$\eta^{\frac{1}{2}}\exp[-(9\rho\eta)^{\frac{1}{2}}]\Phi_0(\eta, \rho)=2.1317\times10^{-2},$$

so that

$$\Phi_0(\eta, \rho)=\frac{0.021317\exp[(9\times2.714\times2.842)^{\frac{1}{2}}]}{(2.842)^{\frac{1}{2}}}\equiv52.526.$$

Then from Eq. (24),

$$F_0(\eta, \rho)=(5.602\times10^{-4})\times(2.714)\times(52.526)=0.07986,$$

since $C_0(\eta)=5.602\times10^{-4}$.

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TABLE I. F_0.

$\log_{10}\eta \rightarrow$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \rightarrow$	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \rightarrow$ (between columns)	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
ρ															
0.1															
0.2	0.1566	0.1463	0.1338	0.1189	0.1016										
0.4	0.3168	0.2984	0.2757	0.2480	0.2152	0.1779	0.1377								
0.6	0.4745	0.4505	0.4203	0.3828	0.3373	0.2842	0.2250	0.1639	0.1071						
0.8	0.6231	0.5965	0.5622	0.5185	0.4639	0.3979	0.3211	0.2410	0.1625						
1.0	0.7568	0.7305	0.6958	0.6498	0.5903	0.5158	0.4267	0.3275	0.2275	0.1384					
1.2	0.8699	0.8471	0.8155	0.7716	0.7119	0.6338	0.5358	0.4217	0.3017	0.1898	0.1011				
1.4	0.9575	0.9410	0.9164	0.8789	0.8239	0.7477	0.6458	0.5214	0.3838	0.2495	0.1378				
1.6	1.0154	1.0081	0.9937	0.9668	0.9217	0.8530	0.7532	0.6238	0.4725	0.3171	0.1815				
1.8	1.0406	1.0449	1.0438	1.0314	1.00105	0.9462	0.8543	0.7261	0.5659	0.3920	0.2324	0.1124			
2.0	1.0324	1.0499	1.0671	1.0695	1.0583	1.0236	0.9452	0.8251	0.6618	0.4732	0.2902	0.1457			
2.2	0.9887	1.0207	1.0528	1.0784	1.0901	1.0822	1.0222	0.9176	0.7576	0.5595	0.3549	0.1848			
2.4	0.9123	0.9588	1.0090	1.0567	1.0937	1.1082	1.0813	0.9987	0.8506	0.6484	0.4259	0.2299			
2.6	0.8042	0.8650	0.9332	1.0044	1.0682	1.1147	1.1209	1.0670	0.9379	0.7386	0.5025	0.2812	0.1221		
2.8	0.6679	0.7420	0.8274	0.9218	1.0131	1.0937	1.1369	1.1188	1.0169	0.8280	0.5827	0.3384	0.1516		
3.0	0.5080	0.5936	0.6945	0.8107	0.9291	1.0448	1.1283	1.1514	1.0844	0.9139	0.6666	0.4014	0.1881		
3.2	0.3300	0.4247	0.5386	0.6741	0.8179	0.9682	1.0936	1.1624	1.1368	0.9937	0.7519	0.4694	0.2285		
3.4	0.1402	0.2410	0.3646	0.5159	0.6822	0.8651	1.0325	1.1500	1.1726	1.0651	0.8367	0.5421	0.2742	0.1007	
3.6	-0.0547	0.0488	0.1782	0.3410	0.5257	0.7377	0.9455	1.1132	1.1891	1.1255	0.9192	0.6186	0.3252	0.1241	
3.8	-0.2476	-0.1451	-0.0143	0.1549	0.3529	0.5891	0.8340	1.0516	1.1845	1.1724	0.9974	0.6975	0.3813	0.1513	
4.0	-0.4314	-0.3338	-0.2063	-0.0363	0.1690	0.4232	0.7003	0.9656	1.1575	1.2035	1.0689	0.7778	0.4423	0.1825	
4.2	-0.5994	-0.5105	-0.3911	-0.2263	-0.0203	0.2447	0.5475	0.8564	1.1074	1.2168	1.1316	0.8580	0.5078	0.2179	
4.4	-0.7453	-0.6688	-0.5622	-0.4086	-0.2089	0.0588	0.3794	0.7260	1.0342	1.2106	1.1833	0.9375	0.5773	0.2577	
4.6	-0.8636	-0.8028	-0.7134	-0.5769	-0.3907	-0.1289	0.2005	0.5771	0.9385	1.1837	1.2217	1.0135	0.6501	0.3020	
4.8	-0.9498	-0.9076	-0.8393	-0.7253	-0.5596	-0.3126	0.0158	0.4132	0.8216	1.1354	1.2450	1.0841	0.7253	0.3508	0.1133
5.0	-1.0006	-0.9792	-0.9351	-0.8486	-0.7099	-0.4864	-0.1693	0.2383	0.6856	1.0656	1.2514	1.1474	0.8018	0.4040	0.1360
5.2	-1.0140	-1.0149	-0.9974	-0.9423	-0.8364	-0.6447	-0.3493	0.0569	0.5332	0.9747	1.2394	1.2014	0.8784	0.4615	0.1619
5.4	-0.9894	-1.0132	-1.0238	-1.0030	-0.9346	-0.7822	-0.5187	-0.1261	0.3677	0.8637	1.2082	1.2442	0.9538	0.5230	0.1912
5.6	-0.9277	-0.9741	-1.0132	-1.0284	-1.0010	-0.8943	-0.6722	-0.3055	0.1930	0.7343	1.1570	1.2741	1.0265	0.5881	0.2241
5.8	-0.8311	-0.8989	-0.9658	-1.0174	-1.0332	-0.9771	-0.8049	-0.4762	0.0134	0.5888	1.0858	1.2894	1.0950	0.6562	0.2608
6.0	-0.7032	-0.7903	-0.8832	-0.9703	-1.0299	-1.0277	-0.9125	-0.6331	-0.1665	0.4300	0.9951	1.2886	1.1576	0.7267	0.3014
6.2	-0.5487	-0.6523	-0.7683	-0.8886	-0.9910	-1.0442	-0.9913	-0.7714	-0.3420	0.2613	0.8856	1.2706	1.2127	0.7988	0.3459

ACCURACY
Left of or below the dashed line table entries differ from check values by 0.5% to 0.4%. Elsewhere they differ by 0.3% to 0.1%.

LINEAR INTERPOLABILITY OF F_0 IN ρ AND $\log_{10}\eta$.
In the area below and to the left of the solid line, F_0 can be interpolated to 1% or better.

TABLE II. F_1.

ρ \ $\log_{10}\eta$ →	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
η		0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta$ →			0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819
0.1																
0.2																
0.4																
0.6	0.1157															
0.8	0.1999	0.1648	0.1564	0.1461	0.1338	0.1192	0.10259									
1.0	0.3012	0.2522	0.2405	0.2259	0.2082	0.1872	0.16251	0.1348	0.1051							
1.2	0.4143	0.3529	0.3379	0.3191	0.2961	0.2683	0.23540	0.1974	0.1565	0.1140						
1.4	0.5339	0.4628	0.4452	0.4226	0.3947	0.3608	0.31979	0.2719	0.2185	0.1622	0.1080					
1.6	0.6539	0.5773	0.5577	0.5325	0.5009	0.4613	0.41368	0.3564	0.2907	0.2198	0.1496					
1.8	0.7682	0.5911	0.6710	0.6442	0.6104	0.5680	0.51396	0.4484	0.3718	0.2864	0.1993	0.1204				
2.0	0.8708	0.7994	0.7797	0.7535	0.7191	0.6740	0.61796	0.5464	0.4603	0.3613	0.2570	0.1593				
2.2	0.9559	0.8967	0.8794	0.8552	0.8229	0.7802	0.72201	0.6466	0.5541	0.4435	0.3225	0.2051	0.1086			
2.4	1.0188	0.9784	0.9648	0.9446	0.9164	0.8775	0.8210	0.7476	0.6511	0.5313	0.3953	0.2580	0.1406			
2.6	1.0552	1.0391	1.0313	1.0174	0.9961	0.9636	0.9141	0.8442	0.7481	0.6229	0.4742	0.3177	0.1783			
2.8	1.0619	1.0764	1.0752	1.0694	1.0573	1.0348	0.9950	0.9334	0.8422	0.7161	0.5581	0.3838	0.2220	0.1011		
3.0	1.0370	1.0866	1.0933	1.0973	1.0967	1.0870	1.0604	1.0117	0.9305	0.8083	0.6453	0.4559	0.2716	0.1279		
3.2	0.9801	1.0673	1.0833	1.0985	1.1113	1.1170	1.1072	1.0756	1.0096	0.8970	0.7341	0.5331	0.3272	0.1592		
3.4	0.8916	1.0181	1.0439	1.0713	1.0990	1.1222	1.1323	1.1219	1.0763	0.9792	0.8225	0.6143	0.3886	0.1954		
3.6	0.7738	0.9389	0.9750	1.0151	1.0586	1.1009	1.1334	1.1478	1.1275	1.0521	0.9080	0.6981	0.4554	0.2367		
3.8	0.6299	0.8314	0.8775	0.9303	0.9899	1.0522	1.1088	1.1510	1.1605	1.1128	0.9882	0.7829	0.5270	0.2832	0.1124	
4.0	0.4644	0.6981	0.7535	0.8184	0.8938	0.9761	1.0578	1.1299	1.1730	1.1586	1.0606	0.8667	0.6026	0.3349	0.1377	
4.2	0.2827	0.5427	0.6062	0.6821	0.7722	0.8737	0.9805	1.0836	1.1631	1.1870	1.1226	0.9477	0.6811	0.3917	0.1669	
4.4	0.0910	0.3698	0.4398	0.5249	0.6279	0.7470	0.8779	1.0120	1.1296	1.1960	1.1717	1.0237	0.7613	0.4533	0.2003	
4.6	−0.1040	0.1848	0.2593	0.3513	0.4648	0.5990	0.7519	0.9158	1.0720	1.1839	1.2057	1.0925	0.8418	0.5193	0.2380	
4.8	−0.2950	−0.0064	0.0703	0.1666	0.2875	0.4335	0.6053	0.7965	0.9904	1.1496	1.2225	1.1518	0.9211	0.5892	0.2801	
5.0	−0.4754	−0.1974	−0.1210	−0.0235	0.1013	0.2551	0.4417	0.6565	0.8860	1.0925	1.2203	1.1994	0.9974	0.6622	0.3268	0.1090
5.2	−0.6384	−0.3816	−0.3082	−0.2128	−0.0881	0.0690	0.2654	0.4990	0.7603	1.0127	1.1978	1.2333	1.0688	0.7374	0.3779	0.1310
5.4	−0.7778	−0.5526	−0.4849	−0.3950	−0.2747	−0.1192	0.0814	0.3279	0.6158	0.9110	1.1542	1.2516	1.1334	0.8138	0.4335	0.1562
5.6	−0.8883	−0.7044	−0.6450	−0.5640	−0.4524	−0.3037	−0.1050	0.1477	0.4557	0.7889	1.0891	1.2527	1.1893	0.8902	0.4932	0.1848
5.8	−0.9656	−0.8315	−0.7828	−0.7140	−0.6152	−0.4786	−0.2882	−0.0367	0.2837	0.6486	1.0029	1.2353	1.2346	0.9652	0.5567	0.2169
6.0	−1.0067	−0.9292	−0.8934	−0.8397	−0.7576	−0.6382	−0.4626	−0.2200	0.1042	0.4929	0.8964	1.1985	1.2674	1.0373	0.6235	0.2528
6.2	−1.0099	−0.9939	−0.9727	−0.9366	−0.8746	−0.7771	−0.6226	−0.3968	−0.0781	0.3252	0.7711	1.1418	1.2860	1.1050	0.6930	0.2926

ACCURACY

Left of or below the dashed line table entries differ from check values by 0.5% to 0.4%. Elsewhere they differ by 0.3% to 0.2%.

LINEAR INTERPOLABILITY OF F_1 IN ρ AND $\log_{10}\eta$.

In the area below and to the left of the solid line, F_1 can be interpolated to 1% or better.

TABLE III. F_2.

ρ \ $\log_{10}\eta$ →		-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
η →	0	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta$ →		0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
0.8																
1.0																
1.2	0.10381															
1.4	0.15868	0.1327	0.1266	0.1190	0.11003											
1.6	0.22654	0.1917	0.1834	0.1730	0.1606	0.1460	0.1288	0.1093								
1.8	0.30653	0.2624	0.2517	0.2385	0.2224	0.2032	0.1806	0.1546	0.12601							
2.0	0.39690	0.3439	0.3309	0.3147	0.2949	0.2710	0.2426	0.2095	0.1727	0.1330						
2.2	0.49514	0.4344	0.4192	0.4003	0.3769	0.3485	0.3142	0.2739	0.2282	0.1782	0.1272					
2.4	0.59808	0.5315	0.5147	0.4934	0.4669	0.4344	0.3946	0.3471	0.2926	0.2316	0.1680	0.1081				
2.6	0.70199	0.6324	0.6143	0.5914	0.5625	0.5267	0.4822	0.4282	0.3652	0.2930	0.2161	0.1419				
2.8	0.80273	0.7333	0.7149	0.6912	0.6611	0.6231	0.5751	0.5156	0.4449	0.3621	0.2716	0.1819	0.1034			
3.0	0.89591	0.8308	0.8128	0.7896	0.7594	0.7207	0.6708	0.6074	0.5305	0.4382	0.3343	0.2285	0.1330			
3.2	0.97717	0.9206	0.9042	0.8827	0.8540	0.8163	0.7665	0.7013	0.6202	0.5200	0.4037	0.2816	0.1679			
3.4	1.0423	0.9989	0.9852	0.9666	0.9412	0.9065	0.8591	0.7945	0.7118	0.6062	0.4791	0.3411	0.2084	0.1033		
3.6	1.0874	1.0616	1.0520	1.0378	1.0173	0.9878	0.9453	0.8842	0.8030	0.6949	0.5594	0.4067	0.2545	0.1297		
3.8	1.1092	1.1054	1.1006	1.0924	1.0787	1.0564	1.0217	0.9673	0.8911	0.7841	0.6433	0.4780	0.3064	0.1604		
4.0	1.1051	1.1270	1.1282	1.1273	1.1221	1.1093	1.0850	1.0407	0.9733	0.8715	0.7292	0.5540	0.3640	0.1960		
4.2	1.0735	1.1241	1.1322	1.1398	1.1446	1.1433	1.1321	1.1013	1.0466	0.9553	0.8152	0.6337	0.4268	0.2363		
4.4	1.0137	1.0950	1.1117	1.1278	1.1438	1.1558	1.1602	1.1463	1.1081	1.0314	0.8992	0.7163	0.4952	0.2820	0.1218	
4.6	0.92595	1.0389	1.0636	1.0899	1.1181	1.1448	1.1669	1.1730	1.1550	1.0978	0.9790	0.7991	0.5676	0.3324	0.1483	
4.8	0.81177	0.9560	0.9888	1.0256	1.0666	1.1090	1.1504	1.1789	1.1848	1.1519	1.0522	0.8809	0.6434	0.3879	0.1786	
5.0	0.67366	0.8474	0.8881	0.9353	0.9890	1.0478	1.1095	1.1623	1.1953	1.1911	1.1164	0.9586	0.7208	0.4482	0.2131	
5.2	0.51514	0.7153	0.7633	0.8204	0.8864	0.9615	1.0438	1.1222	1.1847	1.2132	1.1692	1.0315	0.7994	0.5129	0.2518	
5.4	0.34065	0.5628	0.6172	0.6832	0.7606	0.8512	0.9537	1.0581	1.1518	1.2162	1.2085	1.0974	0.8775	0.5814	0.2949	0.10358
5.6	0.15540	0.3938	0.4534	0.5269	0.6143	0.7189	0.8405	0.9703	1.0959	1.1986	1.2320	1.1542	0.9536	0.6531	0.3425	0.12456
5.8	-0.03486	0.2130	0.2763	0.3555	0.4510	0.5675	0.7062	0.8599	1.0170	1.1594	1.2378	1.1998	1.0261	0.7271	0.3944	0.14859
6.0	-0.22392	0.0257	0.0909	0.1737	0.2749	0.4006	0.5536	0.7288	0.9159	1.0981	1.2244	1.2322	1.0930	0.8024	0.4505	0.17589
6.2		-0.1624	-0.0973	-0.0133	0.0908	0.2225	0.3863	0.5796	0.7940	1.0149	1.1908	1.2496	1.1526	0.8778	0.5106	0.20666

ACCURACY

Right of or below the dashed line table entries differ from check values by 1.0% to 0.5%. Elsewhere they differ by 0.4% to 0.1%.

LINEAR INTERPOLABILITY OF F_2 IN ρ AND $\text{LOG}_{10}\eta$.

In the area below and to the left of the line, F_2 can be interpolated to 1% or better.

TABLE IV. F_3.

ρ \ $\log_{10}\eta \rightarrow$	$\eta \rightarrow 0$	-0.8 0.1585	-0.7 0.1995	-0.6 0.2512	-0.5 0.3162	-0.4 0.3981	-0.3 0.5012	-0.2 0.6310	-0.1 0.7944	0.0 1.000	0.1 1.259	0.2 1.585	0.3 1.995	0.4 2.512	0.5 3.162	0.6 3.981
	$\delta\eta \rightarrow$	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
2.2	0.1693	0.1440	0.1379	0.1306	0.1217	0.1110										
2.6	0.2948	0.2553	0.2456	0.2340	0.2194	0.2022	0.1816	0.1581	0.1318	0.1032						
3.0	0.4561	0.4028	0.3894	0.3733	0.3527	0.3281	0.2977	0.2631	0.2233	0.1782	0.1324					
3.4	0.6411	0.5781	0.5619	0.5421	0.5165	0.4854	0.4449	0.3988	0.3444	0.2814	0.2147	0.1476				
3.8	0.8295	0.7652	0.7479	0.7268	0.6985	0.6635	0.6156	0.5607	0.4931	0.4129	0.3240	0.2308	0.1438			
4.0											0.3884	0.2821	0.1787			
4.2	0.9953	0.9416	0.9262	0.9071	0.8800	0.8458	0.7954	0.7364	0.6614	0.5674	0.4581	0.3367	0.2191	0.1173		
4.6	1.1103	1.082	1.072	1.059	1.039	1.011	0.9657	0.9111	0.8359	0.7356	0.6125	0.4665	0.3163	0.1774		
5.0	1.1491	1.159	1.158	1.156	1.148	1.135	1.1027	1.0625	0.9987	0.9035	0.7769	0.6151	0.4348	0.2561	0.1171	
5.4	1.0932	1.153	1.164	1.176	1.186	1.192	1.1838	1.1686	1.1295	1.0543	0.9413	0.7756	0.5728	0.3544	0.1713	
5.8	0.9356	1.050	1.075	1.104	1.134	1.164	1.1891	1.2087	1.2072	1.1683	1.085	0.9334	0.7245	0.4720	0.2414	
6.0											1.145	1.011	0.8028	0.5372		
6.2	0.6829						1.1059	1.1674	1.2140	1.2267	1.201	1.078	0.8813	0.6057	0.3286	0.1291

ACCURACY

Left of or below the dashed line table entries differ from check values by 0.5% to 0.4%. Elsewhere they differ by 0.3% to 0.1%.

LINEAR INTERPOLABILITY OF F_3 IN ρ AND $\text{LOG}_{10}\eta$.

In the area below and to the left of the solid line, F_3 can be interpolated to 1% or better.

TABLE V. F_4.

ρ \ $\log_{10}\eta \rightarrow$	$\eta \rightarrow 0$	-0.8 0.1585	-0.7 0.1995	-0.6 0.2512	-0.5 0.3162	-0.4 0.3981	-0.3 0.5012	-0.2 0.6310	-0.1 0.7944	0.0 1.000	0.1 1.259	0.2 1.585	0.3 1.995	0.4 2.512	0.5 3.162	
	$\delta\eta \rightarrow$	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650		
3.0	0.1684	0.1447	0.1390	0.1320	0.1238	0.1137	0.1019									
3.4	0.2777	0.242	0.233	0.223	0.210	0.1948	0.1762	0.1550	0.1310	0.105						
3.8	0.4188	0.3713	0.359	0.345	0.327	0.305	0.278	0.248	0.2130	0.174	0.1324					
4.2	0.5853	0.5276	0.513	0.495	0.472	0.445	0.411	0.370	0.3219	0.268	0.2086	0.1483				
4.6	0.7637	0.701	0.685	0.664	0.639	0.606	0.566	0.517	0.4569	0.388	0.3091	0.2258	0.1458			
5.0	0.9351	0.876	0.860	0.840	0.814	0.780	0.736	0.682	0.614	0.531	0.4333	0.3257	0.2175	0.1231		
5.4	1.0765	1.031	1.018	1.000	0.977	0.948	0.905	0.852	0.7804	0.690	0.5780	0.4480	0.3100	0.1829		
5.8	1.1640	1.143	1.138	1.127	1.111	1.088	1.057	1.011	0.9438	0.855	0.7365	0.5896	0.4233	0.2606	0.1281	
6.2	1.1766									1.011	0.8982	0.7442	0.5555	0.3574	0.1846	

ACCURACY

Right of or below the dashed line table entries differ from check values by 1.2% to 0.5%. Elsewhere they differ by 0.4% to 0.1%.

LINEAR INTERPOLABILITY OF F_4 IN ρ AND $\text{LOG}_{10}\eta$.

In the area below and to the left of the solid line, F_4 can be interpolated to 1% or better.

TABLE VI. Φ_0.

$\log_{10}\eta \rightarrow$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \rightarrow$	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \rightarrow$		0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819
ρ															
0.002													1.005032	1.006337	1.007982
0.006											1.009534	1.01201	1.01514	1.01908	1.02407
0.01						1.005004	1.006306	1.007947	1.0100	1.01263	1.01592	1.02007	1.02531	1.03194	1.04032
0.04	1.006086	1.007734	1.00982	1.01244	1.01574	1.01992	1.02519	1.03184	1.0403	1.05094	1.06447	1.08166	1.10364	1.1317	1.1679
0.07	1.01031	1.01320	1.01686	1.02147	1.02730	1.03465	1.04397	1.05579	1.0708	1.08989	1.1143	1.1455	1.1855	1.2373	1.3048
0.1	1.01425	1.01840	1.02363	1.03026	1.03863	1.04924	1.06269	1.07981	1.1015	1.1295	1.1652	1.2113	1.2712	1.3493	1.4524
0.2	1.02524	1.03360	1.04421	1.05765	1.0747	1.0965	1.1244	1.1601	1.2063	1.2661	1.3442	1.4472	1.5847	1.7707	2.0268
0.4	1.03717	1.05407	1.0757	1.1032	1.1385	1.1841	1.2434	1.3206	1.4227	1.5590	1.7435	1.9970	2.3544	2.8687	3.6334
0.6	1.03538	1.0608	1.0935	1.1353	1.1897	1.2606	1.3541	1.4785	1.6463	1.8764	2.1985	2.658	3.3401	4.3780	6.0291
0.8	1.0199	1.0536	1.0970	1.1533	1.2270	1.3243	1.4540	1.6301	1.8730	2.214	2.708	3.441	4.5744	6.3947	9.4735
1.0	0.9909	1.0322	1.0861	1.1562	1.2490	1.3730	1.5408	1.7723	2.0985	2.569	3.270	4.350	6.089	9.0259	14.2812
1.2	0.9491	0.9975	1.0608	1.1442	1.2553	1.4055	1.6121	1.9018	2.3186	2.936	3.881	5.388	7.917	12.3891	20.8280
1.4	0.8954	0.9498	1.0218	1.1170	1.2452	1.4217	1.6658	2.0151	2.5285	3.3077	4.5353	6.5613	10.0941	16.5787	29.5550
1.6	0.8309	0.8903	0.9695	1.0751	1.2190	1.4192	1.7000	2.1095	2.7238	3.6783	5.2263	7.8636	12.6363	21.8306	40.981
1.8	0.7569	0.8203	0.9052	1.0196	1.1767	1.3993	1.7139	2.1826	2.8998	4.0419	5.9470	9.2967	15.5785	28.1841	55.689
2.0	0.6758	0.7418	0.8329	0.9516	1.1196	1.3624	1.7066	2.2322	3.0520	4.3913	6.6841	10.8458	18.9355	35.8165	74.345
2.2	0.5884	0.6556	0.7470	0.8723	1.0484	1.3095	1.6779	2.2567	3.1762	4.7201	7.4309	12.506	22.722	44.90	97.69
2.4	0.4977	0.5645	0.6563	0.7835	0.9642	1.2292	1.6270	2.2515	3.2690	5.0142	8.1737	14.261	26.95	55.55	126.6
2.6	0.4050	0.4701	0.5603	0.6875	0.8693	1.1413	1.5568	2.2205	3.3272	5.2724	8.9027	16.102	31.62	67.93	161.8
2.8	0.3123	0.3745	0.4613	0.5858	0.7656	1.0398	1.4662	2.1619	3.3497	5.4883	9.5896	17.993	36.45	82.13	204.3
3.0	0.2217	0.2796	0.3614	0.4809	0.6553	0.9271	1.3581	2.0766	3.3339	5.6538	10.2354	19.920	42.21	98.32	255.6
3.2	0.1350	0.1875	0.2627	0.3749	0.5408	0.8054	1.2341	1.9654	3.2766	5.7634	10.8235	21.839	48.07	116.5	316.3
3.4	0.0540	0.1002	0.1674	0.2700	0.4246	0.6773	1.0966	1.8301	3.1810	5.8141	11.3357	23.738	54.30	137.0	387.4
3.6	-0.0199	0.0192	0.0773	0.1686	0.3090	0.5455	0.9484	1.6731	3.0466	5.8025	11.7617	25.582	60.82	159.4	470.3
3.8	-0.0853	-0.0540	-0.0059	0.0725	0.1965	0.4127	0.7926	1.4973	2.8750	5.7262	12.0847	27.327	67.56	184.1	566.1
4.0	-0.1412	-0.1179	-0.0805	-0.0162	0.0894	0.2816	0.6322	1.3061	2.6690	5.5842	12.3092	28.949	74.45	211.0	675.9
4.2	-0.1869	-0.1718	-0.1454	-0.0959	-0.0102	0.1551	0.4707	1.1033	2.4319	5.3771	12.4109	30.414	81.40	239.9	800.9
4.4	-0.2218	-0.2148	-0.1995	-0.1653	-0.1005	0.0356	0.3114	0.8928	2.1679	5.1064	12.3872	31.721	88.33	270.8	941.9
4.6	-0.2458	-0.2466	-0.2421	-0.2232	-0.1797	-0.0746	0.1574	0.6788	1.8818	4.7759	12.2334	32.802	95.15	303.6	1100.
4.8	-0.2591	-0.2672	-0.2729	-0.2689	-0.2467	-0.1734	0.0119	0.4658	1.5787	4.3901	11.9470	33.624	101.73	338.0	1275.
5.0	-0.2620	-0.2767	-0.2919	-0.3020	-0.3004	-0.2590	-0.1223	0.2579	1.2647	3.9554	11.5280	34.165	107.96	373.7	1469.
5.2	-0.2553	-0.2758	-0.2994	-0.3225	-0.3403	-0.3300	-0.2426	0.05921	0.9458	3.4789	10.9789	34.397	113.73	410.4	1682.
5.4	-0.2399	-0.2651	-0.2960	-0.3305	-0.3662	-0.3856	-0.3469	-0.1264	0.6281	2.9686	10.3059	34.303	118.92	447.9	1912.
5.6	-0.2169	-0.2458	-0.2824	-0.3268	-0.3782	-0.4251	-0.4335	-0.2952	0.3179	2.4336	9.5167	33.872	123.41	485.6	2161.
5.8	-0.1876	-0.2190	-0.2599	-0.3121	-0.3769	-0.4484	-0.5011	-0.4442	0.02131	1.8841	8.6233	33.097	127.10	523.2	2429.
6.0	-0.1534	-0.1861	-0.2298	-0.2878	-0.3632	-0.4560	-0.5492	-0.5709	-0.2560	1.3301	7.6393	31.975	129.90	560.1	2713.
6.2	-0.1159	-0.1487	-0.1934	-0.2550	-0.3382	-0.4483	-0.5774	-0.6732	-0.5088	0.7822	6.5794	30.510	131.69	595.8	3013.

ACCURACY

Left of or below the dashed line table entries differ from check values by 0.5% to 0.4%. Elsewhere they differ by 0.3% to 0.1%.

LINEAR INTERPOLABILITY OF Φ_0 IN ρ AND η.

In the area above the solid line, Φ_0 can be interpolated to 1% or better. In the area below the solid line and to the left of the dotted line, Φ_0 should be obtained by use of the A_0 and ϕ_0 tables. In the area below the solid line and to the right of the dotted line, Φ_0 should be obtained by use of auxiliary Table XI.

TABLE VII. Φ_1.

ρ \ $\log_{10}\eta$ →	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
η →	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta$ →		0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819
0.01										1.00630	1.00795	1.01001	1.01261	1.01591	1.02005
0.02										1.01261	1.01591	1.02007	1.02533	1.03198	1.04041
0.04										1.02528	1.03194	1.04038	1.05109	1.06469	1.08220
0.05	1.00372	1.00475	1.0061	1.00769	1.00974	1.01234	1.01562	1.0198	1.0250						
0.08										1.05072	1.06437	1.08171	1.10392	1.13236	1.16903
0.1	1.00695	1.00902	1.01162	1.01490	1.01905	1.02431	1.03093	1.0393	1.04997	1.06351	1.08081	1.1027	1.13099	1.16733	1.21445
0.2	1.01190	1.0161	1.02130	1.02792	1.03633	1.04693	1.06052	1.0778	1.09978	1.12795	1.16439	1.21149	1.27307	1.35405	1.46203
0.4	1.0158	1.0242	1.0347	1.0481	1.066	1.0872	1.115	1.1514	1.1981	1.2594	1.3399	1.4471	1.5923	1.7915	2.0714
0.6	1.0115	1.0240	1.0400	1.0603	1.086	1.1198	1.162	1.2195	1.2937	1.3924	1.5251	1.7068	1.9609	2.3241	2.8605
0.8	0.9994	1.0159	1.0370	1.0641	1.098	1.1443	1.202	1.2812	1.3852	1.5256	1.7189	1.9900	2.3820	2.9645	3.8662
1.0	0.9791	0.9995	1.0258	1.0594	1.103	1.1601	1.236	1.3354	1.4709	1.6572	1.9189	2.2959	2.8579	3.7252	5.1295
1.2	0.9514	0.9754	1.0063	1.0463	1.098	1.1670	1.257	1.3812	1.5496	1.7853	2.1233	2.6230	3.3905	4.6190	6.6959
1.4	0.9167	0.9440	0.9792	1.0248	1.085	1.1648	1.271	1.4172	1.6197	1.9081	2.3302	2.9692	3.9809	5.6588	8.6157
1.6	0.8754	0.9055	0.9446	0.9957	1.062	1.1536	1.276	1.4431	1.6803	2.0234	2.5361	3.3323	4.6296	6.8564	10.9430
1.8	0.8281	0.8608	0.9030	0.9588	1.033	1.1324	1.269	1.4584	1.7299	2.1297	2.7395	3.7092	5.3354	8.2234	13.7359
2.0	0.7758	0.8102	0.8553	0.9149	0.993	1.1029	1.252	1.4624	1.7678	2.2251	2.9367	4.0963	6.0970	9.7700	17.0563
2.2	0.7192	0.7552	0.8024	0.8652	0.950	1.0649	1.225	1.4551	1.7932	2.3075	3.1254	4.4901	6.9115	11.5055	20.9697
2.4	0.6594	0.6962	0.7448	0.8097	0.8977	1.0176	1.188	1.4366	1.8050	2.3763	3.3025	4.8861	7.7767	13.4367	25.5392
2.6	0.5967	0.6341	0.6835	0.7499	0.8400	0.9660	1.1446	1.4066	1.8032	2.4288	3.4653	5.2797	8.6853	15.5725	30.8351
2.8	0.5330	0.5700	0.6194	0.6863	0.7778	0.9065	1.0913	1.3654	1.7874	2.4647	3.6107	5.6659	9.6323	17.9093	36.9256
3.0	0.4687	0.5049	0.5537	0.6201	0.7118	0.8416	1.0303	1.3141	1.7676	2.4828	3.7361	6.0397	10.6104	20.4517	43.8715
3.2	0.4046	0.4397	0.4872	0.5523	0.6428	0.7719	0.9628	1.2531	1.7143	2.4823	3.8396	6.3944	11.611	23.193	51.739
3.4	0.3420	0.3753	0.4209	0.4838	0.5720	0.6992	0.8895	1.1833	1.6576	2.4637	3.9191	6.7272	12.624	26.129	60.618
3.6	0.2812	0.3127	0.3557	0.4157	0.5006	0.6243	0.8118	1.1057	1.5886	2.4259	3.9724	7.0397	13.640	29.245	70.550
3.8	0.2235	0.2526	0.2926	0.3489	0.4294	0.5482	0.7306	1.0215	1.5081	2.3696	3.9981	7.3033	14.647	32.542	81.586
4.0	0.1694	0.1957	0.2323	0.2843	0.3595	0.4720	0.6473	0.9318	1.4171	2.2953	3.9949	7.5369	15.632	35.979	93.738
4.2	0.1194	0.1428	0.1756	0.2228	0.2919	0.3968	0.5630	0.8380	1.3168	2.2037	3.9620	7.7267	16.583	39.554	107.07
4.4	0.07415	0.09442	0.1231	0.1651	0.2274	0.3237	0.4791	0.7416	1.2089	2.0956	3.8995	7.8693	17.487	43.253	121.58
4.6	0.03390	0.05093	0.07540	0.1118	0.1668	0.2537	0.3967	0.6439	1.0949	1.9730	3.8074	7.9613	18.328	47.022	137.28
4.8	-0.001078	0.01268	0.03284	0.06350	0.1109	0.1875	0.3169	0.5464	0.9764	1.8372	3.6866	8.0005	19.099	50.825	154.16
5.0	-0.03065	-0.02012	-0.004269	0.02062	0.06013	0.1261	0.2407	0.4504	0.8552	1.6902	3.5381	7.9840	19.782	54.648	172.13
5.2	-0.05479	-0.04737	-0.03574	-0.01658	0.01504	0.07007	0.1691	0.3574	0.7329	1.5338	3.3637	7.9101	20.366	58.424	191.26
5.4	-0.07357	-0.06912	-0.06152	-0.04794	-0.02409	0.01993	0.1031	0.2684	0.6114	1.3705	3.1655	7.7786	20.843	62.151	211.48
5.6	-0.08720	-0.08549	-0.08167	-0.07342	-0.05707	-0.02390	0.04317	0.1847	0.4923	1.2025	2.9459	7.5893	21.200	65.750	232.65
5.8	-0.09596	-0.09672	-0.09639	-0.09307	-0.08384	-0.06116	-0.01000	0.1072	0.3773	1.0323	2.7082	7.3446	21.428	69.184	254.55
6.0	-0.1002	-0.1031	-0.1059	-0.1071	-0.10447	-0.09173	-0.05601	0.03679	0.2679	0.8622	2.4552	7.0453	21.519	72.406	277.23
6.2	-0.1004	-0.1052	-0.1107	-0.1158	-0.1191	-0.1156	-0.09462	-0.02582	0.1656	0.6946	2.1906	6.6949	21.469	75.370	300.52

ACCURACY

Left of or below the dashed line table entries differ from check values by 0.5% to 0.4%. Elsewhere they differ by 0.3% to 0.2%.

LINEAR INTERPOLABILITY OF Φ_1 IN ρ AND η.

In the area above the solid line, Φ_1 can be interpolated to 1% or better. In the area below the solid line and to the left of the dotted line, Φ_1 should be obtained by use of the A_1 and ϕ_1 tables. In the area below the solid line and to the right of the dotted line, Φ_1 should be obtained by use of the auxiliary Table XII.

TABLE VIII. Φ_2.

$\log_{10}\eta \rightarrow$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \rightarrow$	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
ρ \ $\delta\eta \rightarrow$	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
0.05										1.02099	1.02654	1.03353	1.04248	1.0537	1.0681
0.1	1.00458	1.00596	1.00769	1.00987	1.01263	1.01611	1.02049	1.02604	1.03304	1.04199	1.05329	1.0677	1.08603	1.1095	1.1397
0.2	1.00776	1.01049	1.01397	1.01841	1.02388	1.03097	1.03987	1.05117	1.06558	1.08395	1.10746	1.1377	1.1767	1.2275	1.2941
0.4	1.00969	1.01527	1.02223	1.03110	1.04237	1.05674	1.07499	1.09839	1.12847	1.1674	1.2180	1.2843	1.3722	1.4903	1.6516
0.6	1.00587	1.01427	1.02469	1.03831	1.05517	1.07699	1.10496	1.14102	1.18795	1.2494	1.3306	1.4392	1.5865	1.7916	2.0817
0.8	0.9962	1.0079	1.0224	1.0398	1.0626	1.0919	1.1303	1.1807	1.2446	1.3310	1.4438	1.5973	1.8165	2.1210	2.5785
1.0	0.98146	0.99496	1.01234	1.03445	1.06288	1.09972	1.1476	1.2103	1.2934	1.4057	1.5583	1.7707	2.0672	2.5198	3.1999
1.2	0.9609	0.9774	0.9974	1.0244	1.0581	1.1024	1.1606	1.2387	1.3403	1.4792	1.6695	1.9367	2.3340	2.9220	3.8640
1.4	0.9353	0.9539	0.9773	1.0080	1.0473	1.0986	1.1664	1.2582	1.3791	1.5465	1.7790	2.1145	2.6205	3.3945	4.6710
1.6	0.9048	0.9257	0.9516	0.9857	1.03035	1.0883	1.1655	1.2705	1.4112	1.6080	1.8855	2.2926	2.9250	3.9165	5.6040
1.8	0.8703	0.8927	0.9215	0.9588	1.00759	1.0719	1.1582	1.2762	1.4366	1.6635	1.9890	2.4754	3.2445	4.4895	6.6765
2.0	0.8315	0.8555	0.8862	0.9267	0.97965	1.0499	1.1442	1.2747	1.4540	1.7100	2.0865	2.6559	3.5790	5.1165	7.8990
2.2	0.7889	0.8412	0.8469	0.8897	0.9465	1.0215	1.1237	1.2657	1.4633	1.7505	2.1750	2.8361	3.9270	5.7945	9.2865
2.4	0.7436	0.7700	0.8040	0.8492	0.9087	0.9882	1.0971	1.2501	1.4651	1.7801	2.2575	3.0109	4.2855	6.5250	10.8450
2.6	0.6957	0.7229	0.7581	0.8046	0.8667	0.9498	1.0646	1.2270	1.4582	1.8010	2.3310	3.1799	4.6500	7.3065	12.5880
2.8	0.6459	0.6734	0.7094	0.7569	0.82065	0.9069	1.0262	1.1969	1.4427	1.8123	2.3925	3.3383	5.0160	8.1285	14.5170
3.0	0.5951	0.6227	0.6590	0.7071	0.7719	0.8603	0.9830	1.1606	1.4196	1.8136	2.4435	3.4911	5.3850	9.0015	16.6500
3.2	0.5433	0.5708	0.6069	0.6552	0.72045	0.8099	0.9353	1.1180	1.3883	1.8046	2.4810	3.6314	5.7465	9.9105	19.0035
3.4	0.4914	0.5184	0.5540	0.6020	0.6669	0.7566	0.8831	1.0697	1.34895	1.7855	2.5050	3.7578	6.1050	10.8600	21.5430
3.6	0.4400	0.4662	0.5012	0.5481	0.61215	0.7013	0.8280	1.0166	1.3025	1.7562	2.5170	3.8659	6.4590	11.8440	24.3090
3.8	0.3894	0.4148	0.4485	0.4942	0.55665	0.6445	0.7701	0.9592	1.2495	1.7172	2.5140	3.9574	6.7905	12.8640	27.2880
4.0	0.3407	0.3647	0.3969	0.4407	0.50145	0.5868	0.7107	0.8983	1.1914	1.6689	2.5005	4.0308	7.1160	13.9080	30.4905
4.2	0.2937	0.3161	0.3470	0.3884	0.4467	0.5289	0.6501	0.8344	1.1288	1.6117	2.4720	4.0827	7.4160	14.9490	33.9420
4.4	0.2486	0.2699	0.2984	0.3375	0.3924	0.4719	0.5880	0.7684	1.0591	1.5462	2.4270	4.1200	7.6905	15.9885	37.498
4.6	0.2064	0.2260	0.2522	0.2888	0.3401	0.4150	0.5264	0.7009	0.9861	1.4733	2.3700	4.1328	7.9290	17.0235	41.319
4.8	0.1672	0.1849	0.2089	0.2424	0.2900	0.3601	0.4656	0.6328	0.9113	1.3936	2.2995	4.1232	8.1450	18.0555	45.323
5.0	0.1311	0.1469	0.1686	0.1989	0.2424	0.3072	0.4062	0.5648	0.8337	1.3082	2.2140	4.0867	8.3289	19.0586	49.499
5.2	0.09838	0.1123	0.1314	0.1585	0.1977	0.2570	0.3487	0.4977	0.7549	1.2180	2.1178	4.0291	8.4733	20.0215	53.828
5.4	0.06912	0.08107	0.09774	0.1214	0.1563	0.2096	0.2936	0.4320	0.6757	1.1242	2.0119	3.9494	8.5767	20.9381	58.285
5.6	0.04336	0.05340	0.06759	0.08793	0.1184	0.1657	0.2414	0.3686	0.5971	1.0276	1.8973	3.8484	8.6386	21.8025	62.846
5.8	0.02111	0.02929	0.04105	0.05811	0.08411	0.1253	0.1925	0.3079	0.5199	0.9293	1.7752	3.7270	8.6564	22.6009	67.479
6.0	0.002301	0.008704	0.01812	0.03199	0.05363	0.08871	0.1474	0.2505	0.4448	0.8303	1.6468	3.5863	8.6291	23.3207	72.152
6.2	-0.01318	-0.008444	-0.001257	0.009577	0.02700	0.05611	0.1062	0.1968	0.3726	0.7319	1.5136	3.4275	8.5555	23.9559	76.832

ACCURACY

Right of or below the dashed line table entries differ from check values by 1.0% to 0.5%. Elsewhere they differ by 0.4% to 0.1%.

LINEAR INTERPOLABILITY OF Φ_2 IN ρ AND η.

In the area above the solid line, Φ_2 can be interpolated to 1% or better. In the area below the solid line and to the left of the dotted line, Φ_2 should be obtained by use of the A_2 and ϕ_2 tables. In the area below the solid line and to the right of the dotted line, Φ_2 should be obtained by use of auxiliary Table XIII.

TABLE IX. Φ_3.

ρ \ $\log_{10}\eta \rightarrow$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \rightarrow$	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \rightarrow$ (between columns)	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
0.1	1.00341	1.00444	1.00574	1.00738	1.00944	1.01204	1.01534	1.01947	1.02471	1.03135	1.03976	1.05043	1.06400	1.08129	1.10345
0.2	1.00573	1.00778	1.01039	1.01367	1.01782	1.02307	1.02972	1.03813	1.04881	1.06241	1.07977	1.10189	1.13038	1.16721	1.21500
0.4	1.00698	1.01112	1.01635	1.02297	1.03135	1.04200	1.05557	1.07282	1.09491	1.12334	1.16000	1.20767	1.27022	1.35301	1.4642
0.6	1.00378	1.00997	1.01782	1.02777	1.04043	1.05657	1.07724	1.10369	1.13784	1.18222	1.24023	1.31682	1.41931	1.55840	1.7510
1.0	0.98412	0.99429	1.00726	1.02441	1.04485	1.07200	1.10712	1.15266	1.21238	1.29159	1.39779	1.54245	1.74379	2.0305	2.4519
1.4	0.9478	0.9615	0.9792	1.0016	1.0305	1.0684	1.119	1.182	1.271	1.386	1.548	1.773	2.100	2.5877	3.3464
1.8	0.8964	0.9134	0.9352	0.9635	0.9993	1.047	1.111	1.193	1.308	1.462	1.683	2.001	2.480	3.235	4.4626
2.2	0.8306	0.8502	0.8754	0.9087	0.9503	1.0065	1.083	1.183	1.322	1.515	1.798	2.219	2.877	3.961	5.815
2.6	0.7550	0.7762	0.8039	0.8398	0.8870	0.9498	1.036	1.152	1.314	1.544	1.888	2.423	3.281	4.766	7.439
3.0	0.6720	0.6944	0.7236	0.7617	0.8121	0.8784	0.9722	1.101	1.280	1.545	1.950	2.595	3.677	5.632	9.345
3.4	0.5847	0.6075	0.6372	0.6762	0.7284	0.7957	0.8932	1.030	1.225	1.519	1.981	2.737	4.055	6.545	11.54
3.8	0.4966	0.5187	0.5479	0.5865	0.6385	0.7056	0.8049	0.9448	1.152	1.469	1.985	2.839	4.399	7.439	14.01
4.2	0.4091	0.4300	0.4580	0.4949	0.5453	0.6109	0.7083	0.8492	1.061	1.391	1.939	2.898	4.699	8.358	16.74
4.6	0.3266	0.3425	0.3715	0.4044	0.4532	0.5155	0.6091	0.7459	0.9557	1.293	1.867	2.908	4.940	9.256	19.70
5.0	0.2507	0.2678	0.2906	0.3214	0.3642	0.4217	0.5088	0.6384	0.8410	1.175	1.764	2.864	5.109	10.10	22.83
5.4	0.1832	0.1978	0.2173	0.2440	0.2813	0.3327	0.4114	0.5307	0.7213	1.046	1.635	2.773	5.197	10.85	26.08
5.8	0.1253	0.1372	0.1533	0.1753	0.2063	0.2511	0.3197	0.4262	0.6006	0.906	1.478	2.635	5.199	11.49	29.36
6.2						0.1789	0.2365	0.3282	0.4829	0.768	1.308	2.455	5.110	11.98	32.59

TABLE X. Φ_4.

ρ \ $\log_{10}\eta \rightarrow$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
0.1	1.00272	1.00354	1.00458	1.00588	1.0075	1.00961	1.01235	1.01554	1.01972	1.02501	1.03170	1.04017	1.05089	1.06456	1.0821
0.2	1.00453	1.00618	1.00827	1.01089	1.01419	1.01837	1.02367	1.03039	1.03885	1.04963	1.06341	1.08082	1.10324	1.13198	1.1692
0.4	1.00543	1.00872	1.01289	1.01817	1.02484	1.03331	1.04408	1.05775	1.07519	1.09754	1.12626	1.16336	1.21173	1.27513	1.3593
0.6	1.00265	1.00760	1.01386	1.02179	1.03186	1.04465	1.06099	1.08189	1.10868	1.14333	1.18832	1.24719	1.3252	1.42959	1.5719
1.0	0.98629	0.99469	1.00477	1.01831	1.03471	1.05616	1.08383	1.11955	1.16602	1.22703	1.3080	1.41673	1.5656	1.7730	2.0703
1.4	0.9562	0.9652	0.9817	0.9982	1.0189	1.0520	1.0928	1.1415	1.2064	1.2999	1.4257	1.5843	1.8249	2.1749	2.6912
1.8	0.9130	0.9278	0.9443	0.9677	0.9962	1.0344	1.0845	1.1473	1.2376	1.3573	1.5199	1.7571	2.0932	2.6088	3.4254
2.2	0.8587	0.8738	0.8957	0.9198	0.9552	1.0023	1.0579	1.1394	1.2491	1.4006	1.6068	1.9042	2.3672	3.0873	4.2704
2.6	0.7963	0.8124	0.8361	0.8649	0.9039	0.9535	1.0203	1.1133	1.2367	1.4124	1.6674	2.0444	2.6381	3.5921	5.2530
3.0	0.7237	0.7422	0.7666	0.7994	0.8404	0.8948	0.9682	1.0715	1.2136	1.4147	1.7039	2.1672	2.8884	4.1230	6.3234
3.4	0.6474	0.6654	0.6927	0.7253	0.7701	0.8276	0.9071	1.0171	1.1712	1.3974	1.7389	2.2673	3.1395	4.6681	7.5409
3.8	0.5698	0.5885	0.6153	0.6484	0.6922	0.7496	0.8332	0.9494	1.1142	1.3565	1.7307	2.3223	3.3450	5.2119	8.8765
4.2	0.4909	0.5096	0.5349	0.5671	0.6120	0.6715	0.7532	0.8692	1.0399	1.2950	1.6967	2.3573	3.5181	5.7423	10.31
4.6	0.4140	0.4319	0.4554	0.4873	0.5289	0.5869	0.6679	0.7829	0.9554	1.2179	1.6396	2.3474	3.6544	6.2441	11.70
5.0	0.3409	0.3572	0.3795	0.4090	0.4485	0.5028	0.5805	0.6934	0.8615	1.1248	1.5581	2.3078	3.7454	6.7018	13.19
5.4	0.2731	0.2878	0.3075	0.3341	0.3710	0.4208	0.4936	0.5998	0.7619	1.0212	1.4587	2.2382	3.7863	7.0994	14.72
5.8	0.2117	0.2250	0.2424	0.2657	0.2978	0.3437	0.4096	0.5074	0.6602	0.9101	1.3429	2.1383	3.7741	7.4236	16.23
6.2									0.5594	0.7952	1.2145	2.0105	3.7083	7.6627	17.68

ACCURACY. TABLE IX. Left of or below the dashed line table entries differ from check values by 0.5% to 0.4%. Elsewhere they differ by 0.3% to 0.1%. TABLE X. Right of or below dashed line they differ by 1.2% to 0.5%. Elsewhere they differ by 0.4% to 0.1%.

LINEAR INTERPOLABILITY OF Φ_3 AND Φ_4 IN ρ AND η. In areas above the dotted lines Φ_3 and Φ_4 can be interpolated to 1% or better. In areas below the dotted lines and to the left of solid lines Φ_3 and Φ_4 should be obtained by use of A_3, A_4 and ϕ_3, ϕ_4 tables. In areas below dotted lines and to the right of the solid lines Φ_3 and Φ_4 should be obtained by use of the auxiliary Tables XIV and XV.

TABLE XI. $\eta^{1/2} e^{-(9\rho\eta)^{1/2}} \Phi_0 \cdot 10^2$.

ρ \ $\log_{10}\eta \to$	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \to$	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \to$	0.259	0.326	0.410	0.517	0.650	0.819	
0.3						21.7643	20.6437
0.4						17.471	16.444
0.5				16.3301	15.4838	14.5881	13.6648
0.6				14.108	13.313	12.493	11.663
0.7				12.3732	11.6467	10.8986	10.1410
0.8				10.989	10.311	9.6323	8.9470
0.9				9.8390	9.2251	8.6024	7.9847
1.0				8.8849	8.3078	7.7426	7.1689
1.1		9.0497	8.5609	8.0534	7.5365	7.0141	6.4853
1.2		8.2590	7.8113	7.3622	6.8740	6.4011	5.9185
1.3		7.5497	7.1381	6.7147	6.2816	5.8427	5.4464
1.4		6.9207	6.5494	6.1739	5.7698	5.3589	4.9632
1.5		6.3581	6.0190	5.6668	5.3069	4.9392	4.5610
1.6		5.8397	5.5352	5.2249	4.8906	4.5536	4.2120
1.7	5.6316	5.3785	5.1084				
1.8	5.1747	4.9529	4.7084	4.4586	4.1813	3.9015	3.6096
1.9	4.7660						
2.0	4.3885	4.2202	4.0316	3.8340	3.6066	3.3773	3.1316
2.1	4.0348						
2.2	3.7130	3.5970	3.4560	3.3015	3.1177	2.9302	2.7226
2.4	3.1351	3.0604	2.9606	2.8454	2.7042	2.5496	2.3770
2.6	2.6413	2.6031	2.5416	2.4622	2.3502	2.2280	2.0837
2.8	2.2145	2.2208	2.1752	2.1237	2.0273	1.9444	1.8265
3.0	1.8465	1.8638	1.8576	1.8311	1.7725	1.7003	1.6054
3.2		1.5680	1.5843	1.5775	1.5394	1.4851	1.4127
3.4		1.3146	1.3478	1.3583	1.3394	1.3030	1.2451
3.6		1.0981	1.1761	1.1689	1.1661	1.1423	1.0998
3.8		0.90966	0.96699	1.0020	1.0118	1.0002	0.97001
4.0		0.74689	0.81205	0.85530	0.87449	0.87329	0.85373
4.2			0.68049	0.72981	0.75738	0.76480	0.75467
4.4			0.56448	0.61888	0.65105	0.66433	0.66147
4.6			0.46656	0.52447	0.56112	0.58006	0.58324
4.8			0.38327	0.44239	0.48196	0.50494	0.51351
5.0			0.31199	0.37134	0.41290	0.43913	0.45211
5.2			0.25144	0.31040	0.35295	0.38128	0.39754
5.4			0.19992	0.24012	0.29916	0.32930	0.34739
5.6				0.21240	0.25443	0.28538	0.30518
5.8				0.17370	0.21453	0.24575	0.26687
6.0				0.14102	0.18042	0.21135	0.23332
6.2				0.11306	0.15050	0.18060	0.20261

TABLE XII. $\eta^{3/2} e^{-(9\rho\eta)^{1/2}} \Phi_1 \cdot 10^3$.

ρ \ $\log_{10}\eta \to$	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \to$	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \to$	0.259	0.326	0.410	0.517	0.650	0.819	
0.4							
0.6							
0.8							
1.0							
1.2					73.950	75.461	75.744
1.4				55.738	57.162	57.839	57.599
1.6			42.574	44.173	45.010	45.222	44.775
1.8			34.378	35.489	35.972	35.995	35.444
2.0			28.075	28.888	29.172	29.130	28.602
2.2		22.139	23.040	23.648	23.822	23.834	23.266
2.4	17.311	18.260	18.960	19.449	19.601	19.501	19.090
2.6	14.315	15.098	15.680	16.106	16.216	16.150	15.808
2.8	11.817	12.481	12.982	13.342	13.457	13.407	13.142
3.0	9.7346	10.304	10.747	11.076	11.192	11.184	10.970
3.2	8.0025	8.5024	8.9083	9.2143	9.3404	9.3489	9.1997
3.4	6.5608	7.0134	7.3859	7.6798	7.8223	7.8578	7.7561
3.6	5.3633	5.7797	6.2963	6.4170	6.5694	6.6269	6.5682
3.8		4.7392	5.0708	5.3424	5.5105	5.5901	5.5653
4.0		3.8651	4.1771	4.4424	4.6124	4.7086	4.7135
4.2		3.1464	3.4432	3.6989	3.8759	3.9870	4.0165
4.4		2.5371	2.8165	3.0629	3.2377	3.3551	3.3990
4.6		2.0395	2.3015	2.5395	2.7151	2.8395	2.8977
4.8			1.8746	2.1000	2.2730	2.4008	2.4716
5.0			1.5177	1.7313	1.9005	2.0306	2.1089
5.2			1.2210	1.4241	1.5877	1.7163	1.7996
5.4			0.97319	1.1627	1.3171	1.4448	1.5297
5.6			0.77342	0.94942	1.0979	1.2218	1.3080
5.8			0.60647	0.76898	0.90855	1.0275	1.1134
6.0				0.61988	0.75078	0.86395	0.94912
6.2				0.49495	0.61631	0.72242	0.80449

ACCURACY. TABLE XI. All table entries differ from check values by 0.3% to 0.1%. TABLE XII. All table entries differ from check values by 0.3% to 0.2%.

LINEAR INTERPOLABILITY OF IN ρ AND LOG$_{10}\eta$

TABLE XI. Throughout the entire table values can be interpolated to 1 % or better.
TABLE XII. Throughout the entire table values can be interpolated to 1.3% or better.

TABLE XIII. $\eta^{3/2} e^{-(9\rho\eta)^{1/2}} \Phi_2 \cdot 10^3$.

$\log_{10}\eta \to$ / ρ	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \to$	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \to$	0.259	0.326	0.410	0.517	0.650	0.819	
1.4							
1.6						25.832	22.930
1.8					21.875	19.651	17.228
2.0					17.124	15.255	13.246
2.2				14.937	13.535	11.957	10.303
2.4				11.985	10.802	9.4697	8.1063
2.6			10.548	9.7006	8.6820	7.5776	6.4535
2.8		9.1773	8.6018	7.8607	7.0079	6.0850	5.1667
3.0		7.5270	7.0290	6.4020	5.6801	4.9224	4.1633
3.2	6.4807	6.1811	5.7562	5.2328	4.6227	3.9948	3.3790
3.4	5.3391	5.0828	4.7209	4.2899	3.7829	3.2659	2.7564
3.6	4.3974	4.1841	3.9894	3.5239	3.1108	2.6839	2.2632
3.8		3.4344	3.1885	2.8949	2.5547	2.2098	1.8614
4.0		2.8103	2.6145	2.3758	2.0996	1.8201	1.5332
4.2		2.3012	2.1483	1.9545	1.7333	1.5069	1.2732
4.4		1.8720	1.7530	1.6036	1.4239	1.2402	1.0483
4.6		1.5230	1.4326	1.3183	1.1746	1.0284	0.87216
4.8			1.1692	1.0823	0.96934	0.85289	0.72666
5.0			0.94972	0.88616	0.80019	0.70816	0.60646
5.2			0.76876	0.72536	0.66055	0.58815	0.50647
5.4			0.61860	0.59043	0.54198	0.48675	0.42158
5.6			0.49812	0.48143	0.44739	0.40516	0.35332
5.8			0.39754	0.39022	0.36703	0.33567	0.29515
6.0			0.31584	0.31554	0.30106	0.27826	0.24702
6.2			0.24861	0.25339	0.24560	0.22962	0.20568

LINEAR INTERPOLABILITY OF $\eta^{3/2} e^{-(9\rho\eta)^{1/2}} \Phi_2 \cdot 10^3$ IN ρ AND $\log_{10}\eta$.

Throughout Table XIII $\eta^{3/2} e^{-(9\rho\eta)^{1/2}} \Phi_2 \cdot 10^3$ can be interpolated to 1.3% or better.

ACCURACY

Right of or below the dashed line table entries differ from check values by 1.0% to 0.5%. Elsewhere they differ by 0.4% to 0.1%.

TABLE XIV. $\eta^{3/2} e^{-(9\rho\eta)^{1/2}} \Phi_3 \cdot 10^3$.

$\log_{10}\eta \to$ / ρ	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \to$	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \to$	0.259	0.326	0.410	0.517	0.650	0.819	
2.2				11.687	9.9162	8.1735	6.4517
2.6			8.5432	7.3916	6.1260	4.9428	3.8138
3.0		6.4122	5.6094	4.7587	3.8785	3.0799	2.3367
3.4		4.3241	3.7334	3.1246	2.5126	1.9683	1.4765
3.8		2.9380	2.5176	2.0768	1.6550	1.2779	0.95568
4.2	2.2704	1.9861	1.6851	1.3873	1.0983	0.84249	0.62795
4.6	1.5333	1.3366	1.1286	0.92759	0.73181	0.55918	0.41583
5.0	1.0269	0.89443	0.75669	0.62103	0.49084	0.37529	0.27971
5.4	0.67638	0.59163	0.50271	0.41451	0.32841	0.26711	0.18864
5.8			0.33098	0.27588	0.22044	0.17065	0.12842
6.2			0.21484	0.18150	0.14669	0.11483	0.087243

ACCURACY. All table entries differ from check values by 0.3% to 0.1%. PARABOLIC INTERPOLATION yields better than 2% accuracy.

TABLE XV. $\eta^{3/2} e^{-(9\rho\eta)^{1/2}} \Phi_4 \cdot 10^4$.

$\log_{10}\eta \to$ / ρ	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \to$	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \to$	0.259	0.326	0.410	0.517	0.650	0.819	
3.4			32.771	25.883	19.454	14.038	9.6486
3.8			21.950	16.988	12.585	8.9530	6.0550
4.2			14.745	11.285	8.2229	5.7882	3.8675
4.6			9.9112	7.4877	5.4136	3.7722	2.4696
5.0			6.6836	5.0042	3.5984	2.4902	1.6160
5.4			4.4851	3.3457	2.3926	1.6504	1.0647
5.8	4.8119	3.8829	3.0073	2.2388	1.6002	1.1026	0.70988
6.2	3.1880	2.5744	1.9948	1.4863	1.0645	0.73447	0.47329

ACCURACY. All table entries differ from check values by 1.2% to 0.5%.

TABLE XVI. Φ_0^*.

$\log_{10}\eta \rightarrow$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
$\eta \rightarrow$	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995
$\delta\eta \rightarrow$ (between columns)	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	
ρ												
1.4	0.4801	0.5381	0.7009									
1.6	0.2759	0.3729	0.5036									
1.8	0.0563	0.1490	0.2779	0.4609	0.7279							
2.0	-0.1703	-0.0868	0.0351	0.2109	0.4759							
2.2	-0.3955	-0.3230	-0.2170	-0.0566	0.1916	0.5859	1.2433					
2.4	-0.6106	-0.5549	-0.4691	-0.3328	-0.1111	0.2553	0.9012					
2.6	-0.8076	-0.7719	-0.7121	-0.6075	-0.4236	-0.1006	0.5055	1.6390				
2.8	-0.9779	-0.9659	-0.9360	-0.8704	-0.7349	-0.4701	0.0708	1.1538				
3.0	-1.1156	-1.1290	-1.1330	-1.1118	-1.0334	-0.8425	-0.3922	0.5958				
3.2	-1.2145	-1.2553	-1.2955	-1.3244	-1.3087	-1.2067	-0.8689	-0.0157				
3.4	-1.2701	-1.3387	-1.4145	-1.4945	-1.5502	-1.5476	-1.3433	-0.6651	1.2183			
3.6	-1.2802	-1.3741	-1.4875	-1.5203	-1.7491	-1.8552	-1.8016	-1.3348	0.2841			
3.8	-1.2437	-1.3630	-1.5157	-1.6922	-1.8937	-2.1093	-2.2256	-2.0034	-0.7239	3.6882		
4.0	-1.1618	-1.3007	-1.4791	-1.7106	-1.9823	-2.3121	-2.6052	-2.6518	-1.7783	2.1251		
4.2	-1.0373	-1.1947	-1.3974	-1.6715	-2.0023	-2.4459	-2.9132	-3.2558	-2.8478	0.3882		
4.4	-0.8732	-1.0409	-1.2649	-1.5739	-1.9672	-2.5075	-3.1524	-3.8033	-3.9070	-1.4811		
4.6	-0.6772	-0.8510	-1.0880	-1.4231	-1.8617	-2.4916	-3.3007	-4.2534	-4.9190	-3.4391	7.1883	
4.8	-0.4549	-0.6294	-0.8702	-1.2213	-1.6945	-2.3992	-3.3588	-4.6119	-5.8658	-5.4399	3.4918	
5.0	-0.2153	-0.3838	-0.6215	-0.9773	-1.4699	-2.2310	-3.3180	-4.8485	-6.6764	-7.4282	-0.5683	
5.2	0.0327	-0.1231	-0.3487	-0.6972	-1.1919	-1.9864	-3.1749	-4.9577	-7.3679	-9.3468	-4.9245	
5.4	0.2800	0.1427	-0.0618	-0.3913	-0.8734	-1.6777	-2.9365	-4.9334	-7.8764	-11.144	-9.4578	26.798
5.6	0.5173	0.4037	0.2274	-0.0706	-0.5224	-1.3114	-2.6023	-4.7626	-8.2101	-12.772	-14.078	16.499
5.8	0.7354	0.6506	0.5099	0.2537	-0.1513	-0.9017	-2.1873	-4.4598	-8.3301	-14.118	-18.661	5.0043
6.0	0.9262	0.8742	0.7750	0.5705	0.2272	-0.4568	-1.6987	-4.0156	-8.2360	-15.220	-23.185	-7.4142
6.2	1.0822	1.0654	1.0121	0.8680	0.6006	-0.0061	-1.1459	-3.4555	-7.9220	-15.965	-27.272	-20.591

ACCURACY

Left of or below the dashed line errors as derived from fundamental quantities are from 0.7% to 0.6%. Elsewhere they are from 0.5% to 0.3%.

LINEAR INTERPOLABILITY OF Φ_0^* IN ρ AND LOG$_{10}\eta$.

Throughout the entire table, Φ_0^* can be interpolated to 1% or better.

TABLE XVII. Φ_1^*.

ρ	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
2.6	0.3708	0.4467	0.5502	0.6943	0.8988							
2.8	0.1656	0.2349	0.3290	0.4618	0.6534							
3.0	-0.0283	0.0302	0.1128	0.2310	0.4067	0.6736	1.0942					
3.2	-0.2070	-0.1595	-0.0910	0.0097	0.1113	0.4056	0.7962					
3.4	-0.3670	-0.3313	-0.2785	-0.1977	-0.0695	0.1396	0.4917					
3.6	-0.5038	-0.4818	-0.4460	-0.3874	-0.2880	-0.1160	0.1886					
3.8	-0.6169	-0.6080	-0.5896	-0.5548	-0.4861	-0.3560	-0.1062	0.3856				
4.0	-0.7038	-0.7092	-0.7095	-0.6999	-0.6647	-0.5749	-0.3857	0.0241				
4.2	-0.7618	-0.7794	-0.7970	-0.8105	-0.8048	-0.7682	-0.6446	-0.3268	0.4446			
4.4	-0.7933	-0.8239	-0.8584	-0.8959	-0.9271	-0.9353	-0.8768	-0.6586	-0.0307			
4.6	-0.7977	-0.8388	-0.8890	-0.9478	-1.0093	-1.0640	-1.0778	-0.9633	-0.4901	0.9616		
4.8	-0.7762	-0.8277	-0.8911	-0.9707	-1.0633	-1.1616	-1.2442	-1.2416	-0.9310	0.2648		
5.0	-0.7322	-0.7909	-0.8662	-0.9625	-1.0805	-1.2199	-1.3686	-1.4697	-1.3410	-0.4285	3.0314	
5.2	-0.6660	-0.7312	-0.8157	-0.9269	-1.0681	-1.2445	-1.4549	-1.6625	-1.7177	-1.1035	1.8769	
5.4	-0.5834	-0.6521	-0.7425	-0.8644	-1.0231	-1.2323	-1.4980	-1.8018	-2.0317	-1.7460	0.6822	
5.6	-0.4854	-0.5562	-0.6500	-0.7793	-0.9519	-1.1859	-1.4989	-1.8963	-2.3029	-2.6492	-0.5241	
5.8	-0.3783	-0.4480	-0.5426	-0.6747	-0.8552	-1.1076	-1.4590	-1.9371	-2.5045	-2.8873	-1.7167	
6.0	-0.2636	-0.3308	-0.4230	-0.5543	-0.7378	-1.0010	-1.3816	-1.9281	-2.6492	-3.3661	-2.8722	
6.2	-0.1476	-0.2100	-0.2971	-0.4235	-0.6036	-0.8712	-1.2698	-1.8686	-2.7208	-3.7446	-3.9672	

ACCURACY

Left of or below the dashed line errors as derived from fundamental quantities are from 0.7% to 0.6%. Elsewhere they are from 0.5% to 0.4%.

LINEAR INTERPOLABILITY OF Φ_1^* IN ρ AND LOG$_{10}\eta$.

Throughout the entire table, Φ_1^* can be interpolated to 1% or better.

TABLE XVIII. Φ_2^*.

ρ \ $\log_{10}\eta \to$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2
$\eta \to$	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585
$\delta\eta \to$	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	
3.8	0.2204	0.2775	0.3521	0.4601	0.6134						
4.0	0.0577	0.1051	0.1699	0.2675	0.4022						
4.2	-0.0869	-0.0493	0.0024	0.0788	0.1939	0.3718	0.6573				
4.4	-0.2132	-0.1849	-0.1455	-0.0854	0.0079	0.1570	0.4181				
4.6	-0.3191	-0.3001	-0.2731	-0.2296	-0.1585	-0.0398	0.1679	0.5432			
4.8	-0.4053	-0.3967	-0.3824	-0.3526	-0.3040	-0.2161	-0.0412	0.2598			
5.0	-0.4670	-0.4673	-0.4645	-0.4535	-0.4271	-0.3699	-0.2494	-0.0046	0.5726		
5.2	-0.5124	-0.5208	-0.5293	-0.5337	-0.5293	-0.5038	-0.4232	-0.2384	0.2056		
5.4	-0.5366	-0.5516	-0.5697	-0.5881	-0.6028	-0.6055	-0.5716	-0.4476	-0.1080	0.7892	
5.6	-0.5430	-0.5651	-0.5924	-0.6237	-0.6571	-0.6881	-0.6963	-0.6372	-0.3817	0.3183	
5.8	-0.5321	-0.5597	-0.5948	-0.6369	-0.6863	-0.7414	-0.7879	-0.7968	-0.6535	-0.0833	1.7539
6.0	-0.5074	-0.5392	-0.5814	-0.6255	-0.6956	-0.7739	-0.8567	-0.9219	-0.8675	-0.4804	1.0918
6.2	-0.4701	-0.5046	-0.5520	-0.5973	-0.6841	-0.7808	-0.8941	-1.0098	-1.0701	-0.8424	0.4087

TABLE XIX. Φ_3^*.

ρ \ $\log_{10}\eta \to$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2
5.0	0.10060	0.13797	0.18964	0.26208	0.37011						
5.2	-0.01703	0.01232	0.05369	0.11321	0.20279						
5.4	-0.11729	-0.09569	-0.06440	-0.1777	0.05361	0.18878	0.35630				
5.6	-0.20066	-0.18617	-0.16455	-0.13106	-0.07683	0.02830	0.15856				
5.8	-0.26709	-0.25931	-0.24684	-0.22589	-0.18811	-0.11156	0.00054	0.22597			
6.0						-0.22357	-0.14695	0.03042			
6.2						-0.31616	-0.27317	-0.14292			

ACCURACY. TABLE XVIII. Right of or below the dashed line errors as derived from fundamental quantities are from 1.2% to 0.7%. Elsewhere they are from 0.6% to 0.3%. TABLE XIX. Left of or below the dashed line errors as derived from fundamental quantities are from 0.7% to 0.6%. Elsewhere they are from 0.5% to 0.3%.

LINEAR INTERPOLABILITY OF Φ_2^*, Φ_3^* IN ρ AND $\log_{10}\eta$.

Throughout both tables values can be interpolated to 1% or better.

TABLE XX. Φ_0^*/Φ_0 .

$\log_{10}\eta \rightarrow$ / ρ	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \rightarrow$	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \rightarrow$	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
0.002 0.006 0.01 0.04 0.07	1.005799 1.00943	1.007427 1.01229	1.00948 1.01586	1.01206 1.02035	1.003942 1.015312 1.0260	1.004970 1.01938 1.03308	1.006263 1.02450 1.04195	1.007889 1.03091 1.05301	1.0099 1.0389 1.0668	1.01250 1.04901 1.08409	1.009468 1.01573 1.06159 1.1055	1.01192 1.01978 1.07725 1.1319	1.005014 1.01499 1.02488 1.0968 1.1649	1.006309 1.01884 1.03126 1.1210 1.2051	1.007940 1.02368 1.03927 1.1509 1.2544
0.1 0.2 0.4 0.6 0.8	1.01245 1.01820 1.00985 0.97493 0.9125	1.01652 1.02627 1.02592 0.9992 0.9456	1.02162 1.03638 1.0459 1.0294 0.9865	1.02800 1.04893 1.0708 1.0665 1.0364	1.0360 1.0647 1.1015 1.1120 1.0971	1.04605 1.0843 1.1393 1.1674 1.1703	1.05858 1.1086 1.1855 1.2345 1.2580	1.07420 1.1386 1.2419 1.3152 1.3621	1.0938 1.1756 1.3103 1.4113 1.4866	1.1178 1.2218 1.3922 1.5253 1.627	1.1477 1.2764 1.4899 1.6585 1.793	1.1844 1.3433 1.6055 1.815 1.982	1.2295 1.4241 1.7410 1.9922 2.1976	1.2844 1.5202 1.8984 2.1966 2.4419	1.3513 1.6342 2.080 2.4293 2.7179
1.0 1.2 1.4 1.6 1.8	0.8209 0.6978 0.5362 0.07443	0.8640 0.7522 0.6044 0.1816	0.9166 0.8179 0.6859 0.3070	0.9804 0.8971 0.7833 0.6376 0.4520	1.0571 0.9910 0.8980 0.7756 0.6186	1.1487 1.1027 1.031 0.933 0.8059	1.2573 1.2332 1.186 1.115 1.018	1.3848 1.3854 1.363 1.253	1.5328 1.5586 1.563 1.512	1.703 1.756 1.788 1.795	1.898 1.980 2.041 2.105	2.119 2.231 2.321 2.446	2.369 2.513 2.633 2.818	2.6490 2.8263 2.980 3.227	2.9639 3.0657 3.365 3.677
2.0 2.2 2.4 2.6 2.8	-0.6722 -1.994	-0.4927 -1.642	-0.2905 -1.271	-0.06487 -0.8837	0.1828 -0.4873	0.6461 0.4474 -0.08817	0.895 0.7410 0.3247	1.164 1.049 0.9085 0.7381	1.379 1.281 1.159 1.012	1.728 1.591	2.103 2.036	2.506 2.508	2.939 3.007	3.410 3.540	3.924 4.118
3.0 3.2 3.4 3.6 3.8	-5.032 -23.52 14.58	-4.038 -13.36 25.24	-3.135 -8.450 256.9	-2.312 -5.535 -23.34	-1.577 -3.651 -9.637	-0.9088 -2.285 -5.111	-0.2888 -1.225 -2.808	0.2869 -0.3634 -1.338	0.8355 0.6287 0.3830 -0.2518	1.373 1.232 1.065 0.8710 0.6441	1.908 1.710 1.435	2.456 2.348 2.183	3.023 2.995 2.918	3.624 3.665 3.666	4.266 4.374 4.445
4.0 4.2 4.4 4.6 4.8	5.550 2.755	6.945 3.451	9.611 4.494	17.43 6.376	196.3 10.36	-15.77 33.40	-6.189 -20.97	-2.951 -6.266	-1.171 -2.614	0.0722 -0.7201	1.265 1.069 0.8455 0.5876	1.957 1.658	2.794 2.621	3.627 3.550	4.481 4.484
5.0 5.2 5.4 5.6 5.8	0.8219 -1.167 -3.920	1.387 -0.5383 -2.971	2.129 0.2087 -1.962	3.236 1.184 -0.8130	4.893 2.385 0.4014	8.614 4.351 2.011	27.13 8.465 4.365	-18.80 39.03 10.04	-5.279 -12.54 -390.9	-1.878 -3.754 -7.493	-0.0493 -0.9177 -2.164	1.274 0.7812 0.1512	2.398 2.106 1.745	3.432 3.273 3.068	4.454 4.392 4.297
6.0 6.2	-9.337	-7.165	-5.233	-3.404	-1.776	-0.01366	1.995	5.133	15.57	-20.41	-4.145	-0.6749	1.300	2.815	4.167

ACCURACY

Left of or below the dashed line errors as derived from fundamental quantities are from 1.2% to 1.0%. Elsewhere they are from 0.8% to 0.4%.

LINEAR INTERPOLABILITY OF Φ_0^*/Φ_0 IN ρ AND $\log_{10}\eta$.

In the area above the solid line, Φ_0^*/Φ_0 can be interpolated to 1% or better. In the area below the solid line, Φ_0^*/Φ_0 should be obtained by use of the tables of Φ_0 and auxiliary tables of Φ_0^*.

TABLE XXI. Φ_1^*/Φ_1.

ρ \ $\log_{10}\eta$ →	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
η →	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta$ →	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
0.01										2.00627	2.00784	2.00993	2.01251	2.01572	2.0198
0.02										2.01248	2.01573	2.01979	2.02492	2.03134	2.03942
0.04										2.02472	2.03118	2.03926	2.04944	2.06215	2.07775
0.05	2.003457	2.004474	2.00566	2.00737	2.00942	2.01200	2.01521	2.01919	2.02437						
0.08										2.04800	2.06134	2.07732	2.09725	2.12216	2.15319
0.1	2.005906	2.00794	2.01052	2.01376	2.01784	2.02294	2.02936	2.03747	2.04754	2.06021	2.07595	2.09596	2.12062	2.15144	2.12974
0.2	2.007847	2.01182	2.01706	2.02350	2.03159	2.04176	2.05447	2.07030	2.09029	2.11529	2.14613	2.18381	2.2318	2.29091	2.36298
0.3															
0.4	2.00146	2.00774	2.01817	2.03108	2.04568	2.06720	2.09265	2.12341	2.16247	2.21027	2.26962	2.34232	2.4311	2.53915	2.6694
0.5															
0.6	1.97566	1.98799	2.00328	2.02258	2.04730	2.07670	2.11615	2.16042	2.21756	2.28754	2.37613	2.47739	2.6033	2.75440	2.9343
0.8															
1.0	1.87765	1.8987	1.9249	1.9579	1.9988	2.04909	2.11001	2.18734	2.28011	2.39262	2.52826	2.68979	2.8818	3.10758	3.3714
1.2															
1.4	1.709	1.740	1.779	1.827	1.886	1.957	2.047	2.155	2.284	2.437	2.620	2.836	3.088	3.380	3.718
1.6															
1.8	1.458	1.501	1.556	1.621	1.701	1.800	1.918	2.060	2.229	2.428	2.659	2.929	3.238	3.592	3.997
2.0	1.296	1.347	1.411	1.486	1.579										
2.2	1.107	1.166	1.240	1.328	1.436	1.565	1.721	1.902	2.115	2.361	2.645	2.969	3.337	3.751	4.217
2.4	0.884	0.954	1.039	1.143	1.267	1.416									
2.6	0.6215	0.7044	0.8050	0.9258	1.070	1.242	1.441	1.672	1.937	2.239	2.580	2.963	3.390	3.865	4.395
2.8						1.038	1.265	1.527							
3.0	-0.06030	0.05982	0.2037	0.3726	0.5713	0.8004	1.062	1.358	1.689	2.056	2.462	2.908	3.397	3.938	4.532
3.2								1.164	1.534						
3.4	-1.073	-0.8827	-0.6617	-0.4086	-0.1215	0.1997	0.5528	0.9379	1.356	1.805	2.288	2.807	3.363	3.972	4.631
3.6								0.6794	1.152						
3.8	-2.760	-2.407	-2.015	-1.590	-1.132	-0.6494	-0.1453	0.3775	0.9172	1.474	2.052	2.656	3.291	3.969	4.694
4.0									0.6491	1.273					
4.2	-6.380	-5.458	-4.539	-3.638	-2.757	-1.936	-1.145	-0.3900	0.3376	1.044	1.746	2.451	3.173	3.932	4.726
4.4										0.785	1.562				
4.6	-23.53	-16.47	-11.79	-8.478	-6.051	-4.194	-2.717	-1.496	-0.4476	0.4874	1.355	2.187	3.014	3.854	4.726
4.8											1.122				
5.0	23.89	39.31	202.9	-46.68	-17.97	-9.674	-5.686	-3.263	-1.568	-0.2535	0.8568	1.855	2.804	3.742	4.698
5.2												1.658			
5.4	7.930	9.435	12.07	18.03	42.47	-61.83	-14.53	-6.713	-3.323	-1.274	0.2155	1.439	2.541	3.590	4.635
5.6												1.194			
5.8	3.942	4.632	5.629	7.249	10.20	18.11	145.9	-18.07	-6.638	-2.797	-0.6339	0.9198	2.216	3.398	4.544
6.0												0.6106			
6.2	1.470	1.996	2.684	3.657	5.068	7.536	13.42	72.37	-16.43	-5.391	-1.811	0.2623	1.820	3.160	4.418

ACCURACY

Left of or below the dashed line errors as derived from fundamental quantities are from 1.2% to 1.0%. Elsewhere they are from 0.8% to 0.6%.

LINEAR INTERPOLABILITY OF Φ_1^*/Φ_1 IN ρ AND $\log_{10}\eta$.

In the area above the solid line, Φ_1^*/Φ_1 can be interpolated to 1% or better. In the area below the solid line, Φ_1^*/Φ_1 should be obtained by use of the tables of Φ_1 and auxiliary tables of Φ_1^*.

TABLE XXII. Φ_2^*/Φ_2.

$\log_{10}\eta \to$ / ρ	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
$\eta \to$	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta \to$	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
0.05													3.04113	3.05202	3.0654
0.1	3.00378	3.00519	3.00689	3.00909	3.01180	3.01526	3.01956	3.02496	3.03187	3.04031	3.05105	3.06440	3.08136	3.10249	3.12889
0.2	3.00464	3.00757	3.01102	3.01520	3.02089	3.02760	3.03616	3.04691	3.06040	3.07737	3.09853	3.12488	3.15815	3.19931	3.25059
0.4	2.99840	3.00373	3.01075	3.01932	3.03016	3.04372	3.06076	3.08200	3.10841	3.14198	3.18347	3.23493	3.29872	3.3779	3.47484
0.6	2.98059	2.98847	2.99908	3.01128	3.02799	3.04842	3.07383	3.11105	3.1451	3.19464	3.25569	3.33118	3.42253	3.53775	3.67664
0.8															
1.0	2.90907	2.92296	2.94052	2.96244	2.98974	3.02372	3.06646	3.11901	3.1834	3.26531	3.36439	3.48558	3.61824	3.81094	4.0248
1.2															
1.4	2.782	2.807	2.835	2.865	2.903	2.952	3.012	3.088	3.178	3.291	3.422	3.592	3.791	4.031	4.324
1.6	2.705	2.731	2.761	2.797	2.842	2.900	2.969	3.057	3.158	3.288	3.441	3.630	3.858	4.128	4.447
1.8	2.616	2.644	2.675	2.719	2.770	2.832	2.912	3.012	3.130	3.272	3.449	3.659	3.910	4.211	4.555
2.0	2.507	2.542	2.577	2.624	2.686	2.758	2.845	2.958	3.090	3.249	3.442	3.678	3.952	4.285	4.651
2.2	2.383	2.422	2.462	2.516	2.584	2.663	2.768	2.889	3.037	3.213	3.429	3.683	3.985	4.349	4.741
2.4	2.245	2.288	2.333	2.395	2.470	2.560	2.671	2.809	2.973	3.171	3.402	3.680	4.010	4.400	4.822
2.6	2.087	2.132	2.187	2.255	2.338	2.439	2.564	2.712	2.897	3.115	3.367	3.670	4.022	4.443	4.892
2.8	1.904	1.959	2.020	2.098	2.188	2.301	2.441	2.603	2.808	3.045	3.321	3.650	4.030	4.478	4.957
3.0	1.699	1.758	1.829	1.915	2.018	2.144	2.302	2.484	2.705	2.966	3.265	3.620	4.026	4.501	5.011
3.2	1.467	1.532	1.612	1.710	1.823	1.969	2.149	2.348	2.591	2.872	3.201	3.579	4.014	4.517	5.059
3.4	1.206	1.284	1.375	1.484	1.615	1.776	1.971	2.191	2.460	2.769	3.124	3.530	3.996	4.523	5.097
3.6	0.906	0.997	1.100	1.229	1.372	1.552	1.771	2.024	2.312	2.649	3.036	3.468	3.967	4.520	5.125
3.8	0.566	0.669	0.785	0.931	1.102	1.305	1.547	1.829	2.149	2.515	2.932	3.399	3.929	4.510	5.151
4.0						1.028	1.298	1.607	1.963	2.368	2.818	3.318	3.880	4.492	5.168
4.2	-0.296	-0.156	0.00682	0.203	0.434	0.703	1.011	1.360	1.755	2.201	2.688	3.225	3.821	4.467	5.186
4.4								1.082	1.522	2.019	2.545	3.121	3.755	4.436	5.190
4.6	-1.546	-1.328	-1.083	-0.795	-0.466	-0.0959	0.319	0.775	1.261	1.807	2.383	3.003	3.679	4.396	5.185
4.8									0.970	1.575	2.208	2.876	3.590	4.348	5.171
5.0	-3.562	-3.181	-2.755	-2.280	-1.762	-1.204	-0.614	-0.00815	0.648	1.316	2.010	2.732	3.492	4.289	5.151
5.2										1.033	1.794	2.578	3.386	4.223	5.126
5.4	-7.764	-6.804	-5.829	-4.844	-3.857	-2.889	-1.947	-1.036	-0.1599	0.702	1.553	2.401	3.260	4.152	5.092
5.6											1.286	2.211	3.126	4.071	5.051
5.8	-25.205	-19.109	-14.49	-10.96	-8.159	-5.917	-4.093	-2.588	-1.257	-0.0896	0.988	1.997	2.980	3.979	5.004
6.0												1.761	2.821	3.877	4.949
6.2	35.670	59.755	-439.12	-62.37	-25.338	-13.916	-8.419	-5.131	-2.872	-1.151	0.270	1.503	2.643	3.761	4.886

ACCURACY

Right of or below the dashed line errors as derived from fundamental quantities are from 2.2% to 1.2%. Elsewhere they are from 1.0% to 0.4%.

LINEAR INTERPOLABILITY OF Φ_2^*/Φ_2 IN ρ AND $\log_{10}\eta$.

In the area above the solid line, Φ_2^*/Φ_2 can be interpolated to 1% or better. In the area below the solid line, Φ_2^*/Φ_2 should be obtained by use of the tables of Φ_2 and auxiliary tables of Φ_2^*.

TABLE XXIII. Φ_3^*/Φ_3.

ρ \ $\log_{10}\eta$ →	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
η →	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
0.1	4.00287	4.00387	4.00516	4.00675	4.00883	4.01140	4.01459	4.01891	4.02383	4.03028	4.03836	4.04847	4.06127	4.07728	4.09734
0.2	4.00341	4.00554	4.00808	4.01134	4.01545	4.02061	4.02705	4.03514	4.04531	4.05813	4.07405	4.09429	4.11954	4.15101	4.19057
0.4	3.99807	4.00217	4.00732	4.01378	4.02200	4.03222	4.04513	4.06121	4.08143	4.10682	4.13859	4.17814	4.22694	4.28896	4.36518
0.6	3.98325	3.98991	3.99767	4.00742	4.01972	4.03502	4.05431	4.07842	4.10856	4.14634	4.19341	4.25189	4.32473	4.41469	4.52568
1.0	3.9281	3.9385	3.9517	3.9652	3.9884	4.0141	4.0463	4.0865	4.1364	4.1988	4.2760	4.3703	4.4888	4.6328	4.8085
1.4	3.833	3.848	3.866	3.879	3.914	3.955	3.997	4.058	4.127	4.217	4.318	4.452	4.624	4.807	5.057
1.8	3.692	3.723	3.747	3.775	3.817	3.860	3.917	3.994	4.087	4.195	4.337	4.505	4.702	4.948	5.251
2.2	3.528	3.553	3.573	3.609	3.670	3.730	3.804	3.893	4.010	4.142	4.318	4.521	4.769	5.059	5.418
2.6	3.305	3.340	3.377	3.416	3.483	3.557	3.648	3.755	3.896	4.060	4.268	4.503	4.795	5.133	5.549
3.0	3.037	3.074	3.119	3.177	3.247	3.341	3.448	3.577	3.750	3.941	4.179	4.462	4.794	5.181	5.637
3.4	2.701	2.750	2.805	2.874	2.959	3.074	3.205	3.364	3.557	3.786	4.059	4.382	4.762	5.203	5.721
3.8	2.301	2.356	2.423	2.507	2.609	2.747	2.902	3.093	3.315	3.580	3.885	4.269	4.701	5.220	5.768
4.2	1.803	1.872	1.956	2.059	2.184	2.365	2.536	2.760	3.024	3.335	3.701	4.177	4.603	5.181	5.788
4.4	1.513	1.590	1.683	1.799											
4.6	1.188	1.274	1.379	1.507	1.662	1.882	2.088	2.359	2.670	3.036	3.456	3.932	4.479	5.111	5.783
4.8	0.821	0.920	1.038	1.182	1.358	1.601	1.829								
5.0	0.4014	0.5155	0.6523	0.8153	1.016	1.291	1.543	1.872	2.213	2.681	3.165	3.710	4.319	5.012	5.752
5.2						0.955	1.224	1.590							
5.4	−0.6399	−0.4839	−0.2962	−0.07280	0.1905	0.5671	0.8663	1.276	1.733	2.246	2.811	3.438	4.124	4.885	5.696
5.6								0.926	1.421						
5.8	−2.130	−1.890	−1.610	−1.288	−0.9113	−0.4441	0.001696	0.5300	1.075	1.729	2.399	3.114	3.888	4.726	5.614
6.0									0.702	1.420					
6.2						−1.767	−1.155	−0.4353	0.3135	1.082	1.898	2.730	3.611	4.535	5.505

$\delta\eta$ (between successive columns): 0.0410, 0.0517, 0.0650, 0.0819, 0.1031, 0.1298, 0.1634, 0.2056, 0.259, 0.326, 0.410, 0.517, 0.650, 0.819

ACCURACY. Left of or below the dashed line errors as derived from fundamental quantities are from 1.2% to 1.0%. Elsewhere they are from 0.8% to 0.4%.

Above the solid line Φ_3^*/Φ_3 can be interpolated to 1% or better. Below the solid line the tables of Φ_3 and of Φ_3^* should be used.

TABLE XXIV. Φ_4^*/Φ_4.

ρ \ $\log_{10}\eta$ →	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
0.1	5.00225	5.00309	5.00409	5.00554	5.00721	5.00909	5.01112	5.01497	5.01906	5.02419	5.03068	5.03881	5.04930	5.06221	5.07805
0.2	5.00271	5.00434	5.00636	5.00897	5.01231	5.01640	5.02158	5.02798	5.03629	5.04652	5.05910	5.07558	5.09588	5.11795	5.15346
0.4	4.99808	5.00144	5.00559	5.01075	5.01736	5.02544	5.03578	5.04881	5.06507	5.08545	5.11111	5.14315	5.18329	5.23337	5.29589
0.6	4.98632	4.99123	4.99745	5.00524	5.01506	5.02731	5.04288	5.06225	5.08663	5.11703	5.15521	5.20284	5.26239	5.33635	5.42801
1.0	4.940	4.949	4.960	4.970	4.989	5.009	5.035	5.067	5.108	5.158	5.221	5.2995	5.397	5.516	5.664
1.4	4.865	4.877	4.891	4.910	4.933	4.962	4.999	5.044	5.091	5.175	5.265	5.372	5.510	5.674	5.871
1.8	4.759	4.774	4.794	4.818	4.848	4.887	4.934	4.994	5.050	5.159	5.273	5.412	5.586	5.797	6.158
2.2	4.596	4.615	4.640	4.670	4.709	4.757	4.816	4.890	4.985	5.119	5.258	5.428	5.629	5.889	6.202
2.6	4.443	4.467	4.496	4.529	4.580	4.638	4.710	4.800	4.892	5.047	5.217	5.412	5.644	5.951	6.319
3.0	4.231	4.259	4.295	4.340	4.395	4.464	4.549	4.654	4.764	4.947	5.141	5.369	5.638	5.986	6.403
3.4	3.983	4.016	4.058	4.111	4.175	4.257	4.356	4.480	4.606	4.810	5.040	5.297	5.602	5.995	6.462
3.8	3.677	3.717	3.767	3.828	3.904	3.998	4.114	4.257	4.412	4.639	4.899	5.192	5.548	5.980	6.498
4.2	3.326	3.373	3.430	3.502	3.591	3.701	3.835	4.001	4.185	4.430	4.722	5.061	5.467	5.942	6.498
4.6	2.909	2.964	3.032	3.117	3.221	3.350	3.506	3.697	3.912	4.188	4.521	4.903	5.360	5.883	6.481
5.0	2.409	2.475	2.556	2.658	2.780	2.930	3.114	3.333	3.590	3.908	4.278	4.711	5.225	5.800	6.446
5.4	1.809	1.890	1.988	2.110	2.258	2.437	2.653	2.906	3.220	3.575	4.001	4.486	5.042	5.684	6.397
5.8									2.780	3.193	3.678	4.220	4.845	5.545	6.332
6.2									2.252	2.741	3.303	3.925	4.620	5.386	6.252

ACCURACY. Right of or below the dashed line errors as derived from fundamental quantities are from 2.6% to 1.2%. Elsewhere they are from 1.0% to 0.4%. LINEAR INTERPOLABILITY OF Φ_4^*/Φ_4 IN ρ AND $\log_{10}\eta$. Throughout the entire table, Φ_4^*/Φ_4 can be interpolated to 1% or better.

TABLE XXV. $\Phi_0 \theta_0$.

ρ \ $\log_{10}\eta$ →	—	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
η →	0.0000	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta$ →	0.1585	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
0.002														0.9595	0.9525	0.9440
0.006												0.9274	0.9245	0.9109	0.8954	0.8772
0.01						0.9706	0.9639	0.9549	0.9461	0.9350	0.9232	0.9002	0.8922	0.8729	0.8543	0.8308
0.025													0.8069	0.7775	0.7500	0.7110
0.04	0.998925	0.9678	0.9598	0.9500	0.9373	0.9223	0.9058	0.8853	0.8620	0.8375	0.8100	0.7735	0.7495	0.7160	0.6803	0.6430
0.055													0.7081	0.6705	0.6315	0.5900
0.07	0.99671	0.9540	0.9426	0.9290	0.9113	0.8913	0.8677	0.8402	0.8093	0.7763	0.7417	0.6990	0.6682	0.6289	0.5887	0.5477
0.1	0.99335	0.9429	0.9295	0.9130	0.8920	0.8684	0.8388	0.8069	0.7700	0.7312	0.6924	0.6456	0.6105	0.5690	0.5274	0.4861
0.15												0.5800	0.5425	0.5000	0.4600	0.4199
0.2	0.97355	0.9140	0.8970	0.8765	0.8495	0.8175	0.7780	0.7335	0.6850	0.6355	0.5865	0.5345	0.4951	0.4523	0.4115	0.3735
0.25												0.5000	0.4600	0.4183	0.3765	0.3380
0.3										0.5800	0.5238	0.4724	0.4305	0.3885	0.3501	0.3120
0.4	0.89670	0.8600	0.8450	0.8255	0.7975	0.7625	0.7168	0.6633	0.6025	0.5420	0.4852	0.4300	0.3883	0.3475	0.3105	0.2783
0.5										0.5166	0.4540	0.3998	0.3585	0.3180	0.2812	0.2510
0.6	0.77670	0.7873	0.7812	0.7718	0.7513	0.7237	0.6835	0.6307	0.5645	0.4983	0.4363	0.3780	0.3350	0.2960	0.2620	0.2323
0.7															0.2465	0.2155
0.8	0.62473	0.6914	0.6974	0.7019	0.6955	0.6824	0.6536	0.6048	0.5449	0.4766	0.4096	0.3488	0.3041	0.2653	0.2328	0.2054
1.0	0.45465	0.5739	0.5926	0.6132	0.6238	0.6296	0.6192	0.5878	0.5320	0.4651	0.3961	0.3316	0.2843	0.2448	0.2131	0.1872
1.2							0.5746	0.5628	0.5194	0.4593	0.3902	0.3225	0.2716	0.2303	0.1987	0.1740
1.4								0.5279	0.5040	0.4546	0.3874	0.3172	0.2629	0.2201	0.1876	0.1638
1.6									0.4818	0.4486	0.3868	0.3158	0.2578	0.2128	0.1799	0.1558
1.8									0.4512	0.4387	0.3863	0.3170	0.2556	0.2076	0.1737	0.1494
2.0										0.4228	0.3854	0.3195	0.2554	0.2043	0.1689	0.1443
2.2										0.3996	0.3817	0.3227	0.2570	0.2025	0.1653	0.1400
2.4										0.3683	0.3733	0.3257	0.2600	0.2022	0.1627	0.1366
2.6										0.3286	0.3594	0.3274	0.2641	0.2030	0.1610	0.1338
2.8										0.2844	0.3394	0.3261	0.2686	0.2032	0.1600	0.1314
3.0										0.2274	0.3123	0.3220	0.2730	0.2078	0.1597	0.1299
3.2										0.1689	0.2784	0.3136	0.2766	0.2113	0.1600	0.1285
3.4										0.1087	0.2381	0.3001	0.2789	0.2155	0.1613	0.1276
3.6											0.1925	0.2811	0.2792	0.2202	0.1630	0.1271
3.8											0.1432	0.2566	0.2768	0.2249	0.1653	0.1269
4.0											0.09223	0.2265	0.2710	0.2293	0.1681	0.1271
4.2												0.1914	0.2613	0.2331	0.1715	0.1277
4.4												0.1523	0.2481	0.2358	0.1752	0.1286
4.6													0.2303	0.2371	0.1793	0.1299
4.8													0.2079	0.2362	0.1836	0.1315
5.0													0.1812	0.2329	0.1879	0.1336
5.2													0.1506	0.2265	0.1920	0.1361
5.4													0.1172	0.2169	0.1956	0.1389
5.6														0.2038	0.1985	0.1419
5.8														0.1870	0.2003	0.1453
6.0														0.1675	0.2007	0.1490

ACCURACY
Left of or below the dashed line errors as derived from fundamental quantities are from 1.4% to 1.0%. Elsewhere they are from 1.0% to 0.7%.

LINEAR INTERPOLABILITY OF $\Phi_0\Theta_0$ IN ρ AND LOG$_{10}\eta$.
Throughout the entire table, $\Phi_0\Theta_0$ can be interpolated to 1% or better.

TABLE XXVI. $\Phi_1\Theta_1$.

ρ \ $\log_{10}\eta \rightarrow$	$\eta \rightarrow 0$	-0.8 0.1585	-0.7 0.1995	-0.6 0.2512	-0.5 0.3162	-0.4 0.3981	-0.3 0.5012	-0.2 0.6310	-0.1 0.7944	0.0 1.000	0.1 1.259	0.2 1.585	0.3 1.995	0.4 2.512	0.5 3.162	0.6 3.981
$\delta\eta \rightarrow$			0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819
0.01											0.9930	0.9927	0.99012	0.98766	0.98508	0.98109
0.02											0.9882	0.9849	0.98127	0.97650	0.97119	0.96329
0.04											0.97575	0.9705	0.96435	0.95565	0.94605	0.93143
0.05	1.0008	0.99678	0.99612	0.99462	0.99300	0.99072	0.98880	0.98568	0.98214	0.9774						
0.1	1.0040	0.99618	0.99444	0.99168	0.98727	0.98466	0.98010	0.97404	0.96627	0.9576	0.9468	0.9336	0.91932	0.90111	0.87933	0.85527
0.2	1.0157	0.99968	0.99810	0.99080	0.98445	0.97949	0.96744	0.95588	0.94275	0.9264	0.9090	0.8829	0.86099	0.83306	0.80051	0.75947
0.3															0.7400	0.6961
0.4	1.0597	1.0258	1.0182	1.0069	0.99413	0.97815	0.95978	0.93728	0.91260	0.8835	0.85275	0.8168	0.77940	0.73900	0.69629	0.65220
0.6	1.1227	1.0735	1.0606	1.0438	1.0244	1.0001	0.97200	0.93880	0.90145	0.8620	0.8190	0.7720	0.72605	0.67810	0.62995	0.58165
0.8	1.1911														0.5830	0.5325
1.0	1.2485	1.1838	1.1661	1.1413	1.1132	1.0760	1.0328	0.97905	0.91905	0.8550	0.7884	0.7227	0.66117	0.60165	0.54690	0.49560
1.2	1.2783	1.2200	1.2048	1.1803	1.1548											
1.4	1.2724	1.2350	1.2253	1.2052	1.1844	1.1490	1.1061	1.0419	0.9675	0.8857	0.7946	0.7074	0.62836	0.55928	0.49812	0.44508
1.6	1.2032	1.2135	1.2122	1.2017	1.1910	1.1621		1.0725	0.9975							
1.8	1.0853	1.1470	1.1584	1.1604	1.1650	1.1559	1.1343	1.0884	1.0227	0.9340	0.8268	0.7172	0.6188	0.5365	0.46923	0.4122
2.0	0.9159	1.0346	1.0578	1.0790	1.1016	1.1064	1.1145	1.0892	1.0388	0.9579	0.8481	0.7290	0.6204	0.5327		0.4002
2.2	0.7053	0.8783	0.9176	0.9549	1.0001	1.0363	1.0642	1.0627	1.0395	0.9759	0.8701	0.7452	0.6259	0.5298	0.4522	0.3903
2.4	0.4689	0.6845			0.8584	0.9200	0.9764	1.0091	1.0228	0.9839	0.8905	0.7638	0.6348	0.5256	0.4468	0.3819
2.6	0.2264	0.4675					0.8614	0.9362	0.9808	0.9752	0.9053	0.7833	0.6469	0.5279	0.4423	0.3751
2.8		0.2455						0.8266	0.9125	0.9530	0.9117	0.8018	0.6620	0.5328	0.4400	0.3695
3.0									0.8191	0.9076	0.9063	0.8178	0.6785	0.5404	0.4394	0.3651
3.2										0.8399	0.8861	0.8286	0.6957	0.5499	0.4404	0.3618
3.4											0.8493	0.8318	0.7129	0.5616	0.4431	0.3596
3.6											0.7936	0.8246	0.7296	0.5751	0.4472	0.3582
3.8												0.8053	0.7402	0.5901	0.4530	0.3579
4.0												0.7703	0.7468	0.6056	0.4604	0.3584
4.2												0.7205	0.7467	0.6213	0.4695	0.3598
4.4												0.6533	0.7368	0.6358	0.4799	0.3622
4.6													0.7164	0.6482	0.4916	0.3655
4.8													0.6833	0.6574	0.5042	0.3698
5.0													0.6454	0.6619	0.5176	0.3750
5.2													0.5827	0.6602	0.5311	0.3813
5.4														0.6514	0.5445	0.3889
5.6														0.6342	0.5569	0.3975
5.8														0.6075	0.5674	0.4067
6.0														0.5706	0.5755	0.4172

ACCURACY

Left of or below the dashed line errors as derived from fundamental quantities are from 1.6% to 1.0%. Elsewhere they are from 1.0% to 0.7%.

LINEAR INTERPOLABILITY OF $\Phi_1\Theta_1$ IN ρ AND $\log_{10}\eta$.

Throughout the entire table, $\Phi_1\Theta_1$ can be interpolated to 1% or better.

TABLE XXVII. $\Phi_2 \Theta_2$.

ρ \ $\log_{10}\eta$ →	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
η →		0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta$ →	0.1585	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
0.05											0.9901	0.9874	0.9826	0.9798	0.9750	0.9691
0.1	1.0007	0.9985	0.9980	0.9965	0.9960	0.9940	0.9930	0.9910	0.9880	0.9850	0.9805	0.9760	0.9695	0.9615	0.9524	0.9405
0.2	1.0042	0.9985	0.9975	0.9958	0.9930	0.9903	0.9878	0.9830	0.9788	0.9720	0.9642	0.9545	0.9433	0.9290	0.9129	0.8933
0.4	1.0165	1.0063	1.0025	0.9986	0.9943	0.9890	0.9828	0.9750	0.9643	0.9530	0.9389	0.9228	0.9003	0.8783	0.8502	0.8196
0.6	1.0380	1.0283	1.0183	1.0117	1.0042	0.9958	0.9858	0.9733	0.9583	0.9408	0.9208	0.8975	0.8717	0.8400	0.8030	0.7649
0.8	1.0716															
1.0	1.1181	1.0875	1.0745	1.0630	1.0485	1.0340	1.0125	0.9900	0.9610	0.9335	0.9025	0.8665	0.8255	0.7815	0.7355	0.6875
1.4	1.2478	1.1939	1.1771	1.1578	1.1378	1.1111	1.0807	1.0418	1.0032	0.9564	0.9057	0.8546	0.7986	0.7450	0.6896	0.6357
1.6	1.3233			1.2197	1.1950	1.1641	1.1272	1.0806	1.0334	0.9772						
1.8	1.3963	1.3275	1.3103	1.2867	1.2586	1.2228	1.1811	1.1270	1.0711	1.0042	0.9322	0.8606	0.7842	0.7214	0.6578	0.5881
2.0	1.4566	1.3925	1.3760	1.3513	1.3230	1.2845	1.2395	1.1792	1.1165	1.0388						
2.2	1.4924	1.4432	1.4286	1.4066	1.3800	1.3427	1.2970	1.2341	1.1659	1.0789	0.9830	0.8873	0.7905	0.7125	0.6341	0.5670
2.4	1.4923	1.4687	1.4606	1.4433	1.4225	1.3906	1.3487	1.2866	1.2185	1.1233					0.6278	0.5577
2.6	1.4464	1.4610	1.4604	1.4519	1.4408	1.4191	1.3869	1.3314	1.2689	1.1691	1.0535	0.9340	0.8111	0.7142	0.6236	0.5500
2.8	1.3483	1.4098	1.4202	1.4236	1.4273	1.4207	1.4045	1.3616	1.3109	1.2136					0.6208	0.5434
3.0	1.1963	1.3115	1.3342	1.3532	1.3742	1.3880	1.3935	1.3707	1.3402	1.2530	1.1338	0.9970	0.8472	0.7257	0.6198	0.5380
3.2		1.1641	1.2002	1.2359	1.2773	1.3153	1.3478	1.3520	1.3505	1.2814					0.6204	0.5345
3.4				1.0728	1.1359	1.1997	1.2635	1.3002	1.3350	1.2949	1.2031	1.0672	0.8971	0.7472	0.6233	0.5313
3.6						1.0429	1.1392	1.2117	1.2900	1.2874	1.2240				0.6278	0.5293
3.8								1.0863	1.2119	1.2550	1.2307	1.1299	0.9552	0.7809	0.6350	0.5284
4.0										1.1944	1.2188	1.1513	0.9848	0.8026	0.6436	0.5286
4.2										1.1035	1.1845	1.1617	1.0114	0.8235	0.6535	0.5298
4.4										0.9845					0.6665	0.5322
4.6											1.0417	1.1422	1.0611	0.8780	0.6810	0.5357
4.8															0.6977	0.5403
5.0												1.0360	1.0729	0.9319	0.7158	0.5462
5.2															0.7355	0.5532
5.4													1.0244	0.9691	0.7563	0.5614
5.6															0.7779	0.5706
5.8													0.9049	0.9791	0.7992	0.5809
6.0													0.8169	0.9757	0.8194	0.5922
6.2															0.8375	0.6041

LINEAR INTERPOLABILITY of $\Phi_2\Theta_2$ in ρ and $\log_{10}\eta$.

Throughout the entire table, $\Phi_2\Theta_2$ can be interpolated to 1% or better.

ACCURACY. Below the dashed line errors as derived from fundamental quantities are from 1.8% to 1.0%. Elsewhere they are from 1.0% to 0.7%.

TABLE XXVIII. $\Phi_3\Theta_3$.

ρ \ $\log_{10}\eta$ →	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
η		0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162	3.981
$\delta\eta$ →	0.1585	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	0.819	
0.1	1.0004	0.9989	0.9982	0.9982	0.9975	0.9968	0.9961	0.9947	0.9940	0.9912	0.9891	0.9870	0.9835	0.9793	0.9751	0.9681
0.2	1.0018	0.9989	0.9982	0.9978	0.9965	0.9951	0.9936	0.9916	0.9884	0.9856	0.9818	0.9765	0.9698	0.9611	0.9520	0.9398
0.4	1.0072	1.0022	1.0003	0.9986	0.9961	0.9940	0.9900	0.9861	0.9809	0.9746	0.9672	0.9564	0.9454	0.9315	0.9147	0.8936
0.6	1.0185	1.0085	1.0069	1.0048	1.0015	0.9966	0.9912	0.9860	0.9778	0.9682	0.9564	0.9420	0.9265	0.9050	0.8835	0.8569
1.0	1.0497	1.0346	1.0312	1.0255	1.0206	1.0122	1.0038	0.9933	0.9793	0.9632	0.9429	0.9212	0.8974	0.8687	0.8379	0.7987
1.4	1.1074	1.0840	1.0787	1.0690	1.0595	1.0465	1.0335	1.0180	0.9955	0.9735	0.9460	0.9150	0.8815	0.8415	0.8015	0.7570
1.8	1.2008	1.1604	1.1503	1.1387	1.1235	1.1009	1.0850	1.0597	1.0296	0.9979	0.9602	0.9170	0.8785	0.8287	0.7760	0.7249
2.2	1.3321	1.2758	1.2615	1.2446	1.2237	1.1909	1.1658	1.1293	1.0876	1.0406	0.9866	0.9314	0.8809	0.8201	0.7586	0.7019
2.6	1.4869	1.4201	1.4023	1.3811	1.3524	1.3128	1.2775	1.2283	1.1673	1.1065	1.0367	0.9595	0.8950	0.8201	0.7519	0.6845
3.0	1.6220	1.5638	1.5468	1.5255	1.4950	1.4511	1.4079	1.3516	1.2838	1.1941	1.1044	1.0053	0.9192	0.8285	0.7483	0.6729
3.4	1.6646	1.6497	1.6421	1.6290	1.6074	1.5709	1.5291	1.4727	1.3997	1.2998	1.1923	1.0684	0.9583	0.8456	0.7508	0.6658
3.8	1.5417	1.6089	1.6198	1.6268	1.6277	1.6148	1.5940	1.5591	1.5005	1.4088	1.2963	1.1566	1.0136	0.8733	0.7553	0.6631
4.2	1.2136	1.3862	1.4234	1.4599	1.4963	1.5245	1.5459	1.5557	1.5419	1.4845	1.3910	1.2401	1.0857	0.9130	0.7698	0.6646
4.6	0.7068	0.9752	1.0390	1.1068	1.1848	1.2629	1.3417	1.4187	1.4761	1.4871	1.4518	1.3314	1.1604	0.9653	0.7932	0.6704
5.0	0.1225	0.4349	0.5151	0.6048	0.7144	0.8382	0.9723	1.1217	1.2687	1.3760	1.4384	1.3879	1.2384	1.0313	0.8259	0.6809
5.4		−0.1120	−0.0346	0.0556	0.1731	0.3162	0.4842	0.6871	0.9157	1.1341	1.3251	1.3886	1.3033	1.1033	0.8684	0.6968
5.8		−0.5210	−0.4684	−0.4037	−0.3326	−0.1854	−0.02626	0.1869	0.4585	0.7635	1.0928	1.2931	1.3294	1.1742	0.9197	0.7188
6.2															0.9771	0.7473

TABLE XXIX. $\Phi_4\Theta_4$.

ρ	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
0.1	1.0003	0.99947	0.99926	0.99900	0.99868	0.99821	0.9975	0.9972	0.9962	0.9952	0.9943	0.9925	0.9913	0.9878	0.9848	0.9803
0.2	1.0010	0.99945	0.99905	0.99853	0.99789	0.99701	0.9959	0.9945	0.9932	0.9909	0.9887	0.9851	0.9815	0.9765	0.9698	0.9621
0.4	1.0042	1.0010	1.0000	0.9986	0.9974	0.9965	0.9943	0.9911	0.9889	0.9844	0.9801	0.9729	0.9662	0.9581	0.9455	0.9317
0.6	1.0095	1.0048	1.003	1.0005	0.999	0.9977	0.9951	0.9903	0.9864	0.9813	0.9720	0.9642	0.9538	0.9401	0.9252	0.9069
1.0	1.0265	1.0200	1.0170	1.0134	1.011	1.0068	1.0017	0.9954	0.9873	0.9774	0.9648	0.9504	0.9333	0.9117	0.8895	0.8627
1.4	1.0564	1.0434	1.0401	1.0363	1.032	1.0322	1.0164	1.0074	0.9958	0.9836	0.9636	0.9444	0.9206	0.8936	0.8627	0.8280
1.8	1.1008	1.0815	1.0770	1.0710	1.0630	1.0550	1.0435	1.0310	1.0145	0.9980	0.9690	0.9445	0.9145	0.8820	0.8445	0.8010
2.2	1.1669	1.1395	1.1324	1.123	1.1111	1.1002	1.0870	1.0645	1.0469	1.0203	0.9867	0.9507	0.9123	0.8759	0.8330	0.7830
2.6	1.2627	1.2233	1.2143	1.202	1.1866	1.1668	1.1461	1.1194	1.0949	1.0537	1.0087	0.9665	0.9221	0.8768	0.8276	0.7720
3.0	1.3923	1.3387	1.3251	1.310	1.2896	1.2601	1.2321	1.1958	1.1604	1.1100	1.0515	0.9970	0.9411	0.8805	0.8267	0.7629
3.4	1.5480	1.4826	1.4604	1.436	1.4194	1.3818	1.3492	1.3061	1.2526	1.1859	1.1139	1.042	0.9710	0.8960	0.8288	0.7557
3.8	1.7012	1.637	1.614	1.594	1.564	1.5226	1.4788	1.4268	1.3662	1.281	1.1947	1.1018	1.010	0.9152	0.8351	0.7532
4.2	1.7996	1.749	1.736	1.718	1.691	1.6564	1.623	1.5643	1.4942	1.409	1.2977	1.1790	1.0600	0.9433	0.8473	0.7519
4.6	1.7756	1.773	1.772	1.764	1.758	1.7390	1.720	1.6752	1.6151	1.527	1.4163	1.2723	1.1217	0.9798	0.8660	0.7505
5.0	1.5706	1.658	1.676	1.697	1.714	1.7217	1.733	1.7260	1.6978	1.636	1.5295	1.3761	1.2038	1.0332	0.8926	0.7560
5.4	1.1650			1.430	1.485	1.539	1.604	1.6529	1.6810	1.677	1.6214	1.4865	1.3022	1.1032	0.9290	0.7663
5.8	0.6035					1.192	1.310	1.4277	1.5399	1.625	1.6479	1.5759	1.4054	1.1884	0.9776	0.7802
6.2	−0.003148														1.0412	0.7952

ACCURACY

TABLE XXVIII Left of or below the dashed line errors as derived from fundamental quantities are from 1.6% to 1.0%. Elsewhere they are from 1.0% to 0.7%. TABLE XXIX. Below the dashed line the errors are from 1.5% to 1.0%. Elsewhere they are from 1.0% to 0.7%

LINEAR INTERPOLABILITY OF $\Phi_3\Theta_3$ AND $\Phi_4\Theta_4$ IN ρ AND $\log_{10}\eta$

Throughout Tables XXVIII and XXIX $\Phi_3\Theta_3$ and $\Phi_4\Theta_4$ can be interpolated to 1% or better.

TABLE XXX. ϕ_0.

ρ \ $\log_{10}\eta$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4	0.5
$\eta \rightarrow$	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162
$\delta\eta \rightarrow$	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	
0.2	0.1334	0.1188	0.1018	0.0830	0.0631									
0.4	0.2839	0.2555	0.2263	0.1905	0.1507									
0.6	0.4448	0.4086	0.3644	0.3144	0.2563									
0.8	0.6121	0.5677	0.5127	0.4417	0.3755	0.2930								
1.0	0.7845	0.7340	0.6686	0.5950	0.5054	0.4049								
1.2	0.9604	0.9033	0.8280	0.7450	0.6434	0.5270	0.4038	0.2738	0.1632	0.0770	0.0266			
1.4	1.1385	1.0711	0.9929	0.8994	0.7883	0.6577	0.5138	0.3677	0.2275	0.1143	0.0429			
1.6	1.3193	1.2430	1.1596	1.0601	0.9399	0.7979	0.6342	0.4674	0.3015	0.1611	0.0661			
1.8	1.5025	1.4291	1.3399	1.2235	1.0986	0.9385	0.7617	0.5727	0.3865	0.2162	0.0953			
2.0	1.6858	1.6093	1.5062	1.3929	1.2587	1.0871	0.8969	0.6916	0.4779	0.2828	0.1328	0.0415		
2.2	1.8711	1.7902	1.6813	1.5628	1.4208	1.2403	1.0366	0.8118	0.5795	0.3555	0.1772	0.0607		
2.4	2.0579	1.9734	1.8615	1.7369	1.5872	1.3964	1.1805	0.9405	0.6870	0.4374	0.2303	0.0843		
2.6	2.2452	2.1570	2.0400	1.9109	1.7548	1.5561	1.3292	1.0751	0.8012	0.5268	0.2903	0.1147		
2.8	2.4341	2.3427	2.2233	2.0887	1.9257	1.7180	1.4805	1.2127	0.9207	0.6238	0.3587	0.1506		
3.0	2.6231	2.5285	2.4044	2.2659	2.0974	1.8829	1.6361	1.3557	1.0458	0.7264	0.4335	0.1939	0.0567	
3.2	2.8131	2.7162	2.5902	2.4466	2.2718	2.0494	1.7934	1.5007	1.1750	0.8354	0.5158	0.2431	0.0772	
3.4	3.0039	2.9039	2.7735	2.6264	2.4467	2.2184	1.9542	1.6502	1.3090	0.9496	0.6037	0.2998	0.1023	
3.6	3.1952	3.0931	2.9612	2.8094	2.6240	2.3887	2.1159	1.8011	1.4462	1.0689	0.6981	0.3623	0.1327	
3.8	3.3869	3.2821	3.1461	2.9914	2.8015	2.5612	2.2807	1.9560	1.5874	1.1925	0.7973	0.4320	0.1686	
4.0	3.5791	3.4724	3.3353	3.1763	2.9812	2.7347	2.4471	2.1117	1.7311	1.3203	0.9021	0.5071	0.2102	
4.2	3.7718	3.6624	3.5217	3.3600	3.1610	2.9100	2.6144	2.2711	1.8783	1.4517	1.0109	0.5889	0.2576	0.0560
4.4	3.9649	3.8537	3.7121	3.5465	3.3427	3.0861	2.7831	2.4308	2.0274	1.5866	1.1246	0.6755	0.3108	0.0860
4.6	4.1583	4.0446	3.8995	3.7315	3.5244	3.2638	2.9544	2.5939	2.1795	1.7244	1.2416	0.7678	0.3698	0.1001
4.8	4.3519	4.2367	4.0909	3.9192	3.7076	3.4421	3.1259	2.7570	2.3331	1.8652	1.3639	0.8641	0.4343	0.1387
5.0	4.5457	4.4283	4.2794	4.1054	3.8908	3.6217	3.2997	2.9232	2.4893	2.0084	1.4870	0.9655	0.5044	0.1619
5.2	4.7396	4.6210	4.4717	4.2940	4.0754	3.8017	3.4734	3.0893	2.6467	2.1540	1.6149	1.0702	0.5796	0.2101
5.4	4.9337	4.8132	4.6609	4.4811	4.2599	3.9829	3.6493	3.2582	2.8063	2.3016	1.7452	1.1795	0.6599	0.2534
5.6	5.1278	5.0064	4.8540	4.6707	4.4458	4.1644	3.8250	3.4269	2.9669	2.4511	1.8789	1.2915	0.7449	0.3016
5.8	5.3221	5.1990	5.0438	4.8588	4.6315	4.3469	4.0027	3.5982	3.1295	2.6024	2.0148	1.4076	0.8345	0.3551
6.0	5.5165	5.3925	5.2374	5.0492	4.8185	4.5295	4.1802	3.7691	3.2932	2.7552	2.1537	1.5260	0.9283	0.4134

ACCURACY
Left of or below the dashed line errors as derived from fundamental quantities are from 0.3% to 0.8%. Elsewhere they are from 0.9% to 1.6%.

LINEAR INTERPOLABILITY of ϕ_0 in ρ and $\log_{10}\eta$. In the area below and to the left of the solid line ϕ_0 can be interpolated to 1% or better.

TABLE XXXI. ϕ_1.

ρ \ $\log_{10}\eta$ →	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4	0.5
η		0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162
$\delta\eta$ →		0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	
0.6	0.0594														
0.8	0.1246														
1.0	0.2145														
1.2	0.3233	0.2500	0.2327	0.2126	0.1880	0.1602	0.1286	0.0958	0.0652						
1.4	0.4494	0.3560	0.3334	0.3071	0.2751	0.2379	0.1952	0.1501	0.1053						
1.6	0.5872	0.4758	0.4485	0.4170	0.3767	0.3307	0.2768	0.2178	0.1578						
1.8	0.7363	0.6069	0.5748	0.5376	0.4901	0.4352	0.3702	0.2978	0.2216	0.1433					
2.0	0.8923	0.7474	0.7110	0.6697	0.6142	0.5510	0.4750	0.3896	0.2972	0.1998					
2.2	1.0558	0.8956	0.8549	0.8076	0.7466	0.6756	0.5891	0.4913	0.3829	0.2675	0.1612	0.0775			
2.4	1.2235	1.0502	1.0054	0.9538	0.8865	0.8077	0.7121	0.6029	0.4785	0.3442	0.2153	0.1090			
2.6	1.3964	1.2103	1.1613	1.1041	1.0325	0.9466	0.8427	0.7217	0.5824	0.4297	0.2784	0.1485			
2.8	1.5717	1.3716	1.3218	1.2602	1.1838	1.0912	0.9797	0.8472	0.6941	0.5232	0.3500	0.1953	0.0796		
3.0	1.7510	1.5421	1.4864	1.4209	1.3397	1.2405	1.1218	0.9789	0.8127	0.6241	0.4307	0.2502	0.1082		
3.2	1.9316	1.7130	1.6544	1.5862	1.4996	1.3940	1.2688	1.1155	0.9373	0.7319	0.5182	0.3126	0.1434		
3.4	2.1153	1.8840	1.8251	1.7538	1.6628	1.5540	1.4198	1.2570	1.0672	0.8459	0.6126	0.3824	0.1848		
3.6	2.2997	2.0592	1.9984	1.9238	1.8308	1.7113	1.5742	1.4023	1.2016	0.9654	0.7135	0.4591	0.2332		
3.8	2.4866	2.2373	2.1739	2.0959	1.9987	1.8790	1.7316	1.5516	1.3401	1.0900	0.8204	0.5427	0.2880		
4.0	2.6738	2.4163	2.3511	2.2701	2.1692	2.0445	1.8916	1.7039	1.4822	1.2191	0.9426	0.6326	0.3498		
4.2	2.8630	2.5972	2.5301	2.4459	2.3416	2.2127	2.0537	1.8592	1.6277	1.3524	1.0497	0.7291	0.4177		
4.4	3.0523	2.7794	2.7103	2.6234	2.5159	2.3823	2.2179	2.0169	1.7762	1.4896	1.1713	0.8310	0.4921	0.2168	
4.6	3.2433	2.9633	2.8917	2.8023	2.6911	2.5535	2.3841	2.1769	1.9275	1.6301	1.2970	0.9380	0.5724	0.2648	
4.8	3.4342	3.1476	3.0743	2.9825	2.8672	2.7244	2.5519	2.3390	2.0814	1.7739	1.4275	1.0490	0.6584	0.3189	
5.0	3.6267	3.3327	3.2578	3.1639	3.0457	2.8998	2.7216	2.5030	2.2377	1.9204	1.5608	1.1637	0.7495	0.3784	
5.2	3.8188	3.5189	3.4424	3.3463	3.2254	3.0767	2.8929	2.6688	2.3960	2.0696	1.6972	1.2818	0.8448	0.4437	
5.4	4.0124	3.7056	3.6276	3.5296	3.4062	3.2551	3.0657	2.8362	2.5562	2.2211	1.8363	1.4031	0.9454	0.5142	
5.6	4.2053	3.8935	3.8138	3.7138	3.5880	3.4326	3.2399	3.0052	2.7178	2.3748	1.9779	1.5275	1.0492	0.5901	0.2299
5.8	4.4000	4.0817	4.0004	3.8987	3.7709	3.6120	3.4154	3.1755	2.8815	2.5305	2.1219	1.6549	1.1578	0.6707	0.2754
6.0	4.5940	4.2710	4.1881	4.0842	3.9540	3.7922	3.5922	3.3473	3.0466	2.6884	2.2680	1.7851	1.2701	0.7560	0.3257

ACCURACY

Left of or below the dashed line errors as derived from fundamental quantities are from 0.5% to 1.0%. Elsewhere they are from 1.1% to 1.8%.

LINEAR INTERPOLABILITY OF ϕ_1 IN ρ AND $\mathrm{LOG}_{10}\,\eta$.

In the area below and to the left of the solid line, ϕ_1 can be interpolated to 1% or better.

TABLE XXXII. ϕ_2.

ρ \ $\log_{10}\eta$ →	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4
η		0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512
$\delta\eta$ →		0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	
1.0	0.0171													
1.2	0.0382													
1.4	0.0718	0.0539	0.0491	0.0438	0.0380									
1.6	0.1207	0.0916	0.0875	0.0765	0.0673	0.0570								
1.8	0.1847	0.1431	0.1336	0.1224	0.1088	0.0934	0.0780	0.0585						
2.0	0.2642	0.2090	0.1968	0.1811	0.1629	0.1421	0.1182	0.0928						
2.2	0.3572	0.2889	0.2729	0.2536	0.2300	0.2028	0.1713	0.1373	0.1012	0.0668				
2.4	0.4633	0.3809	0.3618	0.3377	0.3091	0.2758	0.2362	0.1915	0.1453	0.0997				
2.6	0.5799	0.4845	0.4615	0.4340	0.3997	0.3598	0.3120	0.2573	0.1994	0.1406				
2.8	0.7066	0.5977	0.5717	0.5396	0.5005	0.4544	0.3983	0.3337	0.2633	0.1916				
3.0	0.8416	0.7200	0.6903	0.6550	0.6104	0.5581	0.4938	0.4199	0.3367	0.2506				
3.2	0.9831	0.8495	0.8171	0.7775	0.7284	0.6704	0.5981	0.5144	0.4189	0.3197	0.2148			
3.4	1.1314	0.9860	0.9503	0.9078	0.8536	0.7897	0.7097	0.6170	0.5092	0.3961	0.2739	0.1590		
3.6	1.2843	1.1282	1.0899	1.0434	0.9851	0.9159	0.8284	0.7260	0.6070	0.4816	0.3410	0.2059		
3.8	1.4425	1.2758	1.2345	1.1853	1.1224	1.0476	0.9530	0.8400	0.7116	0.5733	0.4159	0.2600		
4.0	1.6039	1.4279	1.3843	1.3313	1.2648	1.1847	1.0835	0.9613	0.8224	0.6730	0.4984	0.3216	0.1661	
4.2	1.7695	1.5843	1.5381	1.4825	1.4118	1.3270	1.2190	1.0908	0.9390	0.7776	0.5880	0.3902	0.2205	
4.4	1.9374	1.7441	1.6961	1.6369	1.5632	1.4737	1.3594	1.2256	1.0609	0.8888	0.6838	0.4657	0.2615	
4.6	2.1086	1.9075	1.8572	1.7957	1.7183	1.6245	1.5042	1.3620	1.1890	1.0041	0.7854	0.5473	0.3188	
4.8	2.2815	2.0737	2.0218	1.9570	1.8771	1.7789	1.6532	1.5080	1.3210	1.1253	0.8923	0.6346	0.3823	
5.0	2.4572	2.2428	2.1890	2.1220	2.0388	1.9367	1.8060	1.6564	1.4562	1.2495	1.0042	0.7276	0.4521	0.2122
5.2	2.6340	2.4142	2.3587	2.2889	2.2035	2.0974	1.9621	1.8053	1.5965	1.3785	1.1206	0.8261	0.5273	0.2594
5.4	2.8132	2.5877	2.5303	2.4588	2.3705	2.2608	2.1213	1.9572	1.7404	1.5116	1.2414	0.9299	0.6087	0.3124
5.6	2.9932	2.7628	2.7040	2.6300	2.5397	2.4265	2.2831	2.1116	1.8875	1.6485	1.3657	1.0390	0.6951	0.3711
5.8	3.1752	2.9396	2.8790	2.8035	2.7107	2.5941	2.4471	2.2686	2.0375	1.7889	1.4939	1.1528	0.7870	0.4356
6.0	3.3577	3.1176	3.0559	2.9782	2.8830	2.7635	2.6131	2.4282	2.1904	1.9323	1.6249	1.2709	0.8837	0.5027

ACCURACY
Left of or below the dashed line errors as derived from fundamental quantities are from 0.3% to 1.0%. Elsewhere they are from 1.1% to 1.6%.

LINEAR INTERPOLABILITY OF ϕ_2 IN ρ AND $\log_{10}\eta$.
In the area below and to the left of the solid line, ϕ_2 can be interpolated to 1% or better.

TABLE XXXIII. ϕ_3.

ρ \ $\log_{10}\eta \to$	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4
η		0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512
$\delta\eta \to$		0.0410 (−0.8/−0.7)	0.0517 (−0.7/−0.6)	0.0650 (−0.6/−0.5)	0.0819 (−0.5/−0.4)	0.1031 (−0.4/−0.3)	0.1298 (−0.3/−0.2)	0.1634 (−0.2/−0.1)	0.2056 (−0.1/0.0)	0.259 (0.0/0.1)	0.326 (0.1/0.2)	0.410 (0.2/0.3)	0.517 (0.3/0.4)	
1.8	0.02245													
2.2	0.06835													
2.6	0.1560	0.1229	0.1153	0.1063	0.09553	0.08290								
3.0	0.2908	0.2375	0.2249	0.2100	0.1918	0.1699	0.1458	0.1190						
3.4	0.4703	0.3951	0.3770	0.3557	0.3292	0.2970	0.2604	0.2188	0.1727	0.1248				
3.8	0.6885	0.5906	0.5665	0.5390	0.5045	0.4619	0.4127	0.3557	0.2900	0.2194	0.1480			
4.2	0.9370	0.8174	0.7877	0.7543	0.7118	0.6594	0.5986	0.5264	0.4427	0.3468	0.2464	0.1512		
4.6	1.2105	1.0700	1.0347	0.9954	0.9459	0.8845	0.8137	0.7274	0.6243	0.5057	0.3748	0.2438		
5.0	1.5044	1.3436	1.3031	1.2581	1.2013	1.1323	1.052	0.9536	0.8333	0.6932	0.5311	0.3646	0.2105	
5.4	1.8126	1.6353	1.5909	1.5392	1.4770	1.3991	1.3105	1.2005	1.0650	0.9041	0.7131	0.5116	0.3154	
5.8	2.1337	1.9439	1.8947	1.8384	1.7670	1.6849	1.5862	1.4651	1.3160	1.1356	0.9169	0.6827	0.4447	0.2251
6.2	2.4654													

TABLE XXXIV. ϕ_4.

ρ \ $\log_{10}\eta \to$	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4
2.6	0.02306													
3.0	0.06107	0.04689	0.04371	0.03994	0.03564	0.03063								
3.4	0.1326	0.1042	0.09808	0.09074	0.08206	0.07201								
3.8	0.2395	0.1976	0.1869	0.1750	0.1606	0.1430	0.1231							
4.2	0.3873	0.3280	0.3140	0.2966	0.2752	0.2487	0.2195	0.1854	0.1476					
4.6	0.5712	0.4970	0.4780	0.4547	0.4266	0.3897	0.3493	0.3026	0.2478	0.1906				
5.0	0.7865	0.6948	0.6714	0.6426	0.6078	0.5640	0.5125	0.4515	0.3803	0.3008	0.2175			
5.4	1.0279	0.9222	0.8954	0.8616	0.8198	0.7679	0.7050	0.6318	0.5428	0.4421	0.3308	0.2213		
5.8	1.2913	1.1670	1.1361	1.0982	1.0516	0.9969	0.9236	0.8380	0.7329	0.6094	0.4708	0.3298		
6.2	1.5708													

ACCURACY

Left of or below the dashed line errors as derived from fundamental quantities are for Table XXXIII from 0.6% to 1.2%. Elsewhere they are from 1.3% to 2.0%. Left of or below the dashed line in Table XXXIV they are from 0.6% to 1.2%. Elsewhere they are from 1.3% to 2.2%.

LINEAR INTERPOLABILITY OF ϕ_3 AND ϕ_4 IN ρ AND $\log_{10}\eta$.

In the areas below and to the left of the solid lines ϕ_3 and ϕ_4 can be interpolated to 1% or better.

TABLE XXXV. A_0.

ρ \ $\log_{10}\eta$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5
η	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162
0.0	1.309	1.413	1.561	1.779	2.116	2.662	3.611							
0.2	1.1775	1.2351	1.3169	1.4340	1.6122									
0.4	1.1310	1.1810	1.2289	1.3101	1.4335									
0.6	1.1028	1.1339	1.1792	1.2382	1.3306									
0.8	1.0844	1.1093	1.1462	1.1903	1.2649	1.3744								
1.0	1.0713	1.0917	1.1229	1.1593	1.2189	1.3074								
1.2	1.0618	1.0812	1.1070	1.1400	1.1857	1.2590	1.3700	1.5373	1.8514	2.4748	3.8300			
1.4	1.0541	1.0722	1.0946	1.1225	1.1609	1.2228	1.3140	1.4516	1.7025	2.1885	3.2264			
1.6	1.0480	1.0648	1.0842	1.1082	1.1415	1.1915	1.2710	1.3843	1.5905	1.9767	2.7905			
1.8	1.0432	1.0578	1.0749	1.0966	1.1264	1.1686	1.2370	1.3357	1.5056	1.8162	2.4669			
2.0	1.0392	1.0521	1.0670	1.0865	1.1139	1.1504	1.2100	1.2934	1.4389	1.6961	2.2222	3.5085		
2.2	1.0357	1.0470	1.0609	1.0781	1.1033	1.1370	1.1876	1.2623	1.3852	1.6018	2.0337	3.0654		
2.4	1.0330	1.0431	1.0559	1.0718	1.0944	1.1253	1.1687	1.2322	1.3424	1.5271	1.8863	2.7243		
2.6	1.0306	1.0397	1.0515	1.0662	1.0870	1.1150	1.1542	1.2119	1.3078	1.4651	1.7697	2.4583		
2.8	1.0285	1.0366	1.0476	1.0614	1.0806	1.1061	1.1413	1.1936	1.2783	1.4151	1.6753	2.2478		
3.0	1.0265	1.0338	1.0441	1.0571	1.0749	1.0985	1.1306	1.1783	1.2537	1.3734	1.59895	2.0795	3.3190	
3.2	1.0247	1.0312	1.0410	1.0533	1.0700	1.0919	1.1211	1.1652	1.2323	1.3382	1.5361	1.9429	2.9676	
3.4	1.0229	1.0290	1.0383	1.0499	1.0657	1.0858	1.1135	1.1537	1.2143	1.3084	1.4838	1.8311	2.6860	
3.6	1.0212	1.0272	1.0360	1.0469	1.0617	1.0801	1.1068	1.1436	1.1985	1.2830	1.4398	1.7389	2.4589	
3.8	1.0196	1.0256	1.0339	1.0440	1.0581	1.0751	1.1005	1.1346	1.1847	1.2610	1.4025	1.6613	2.2734	
4.0	1.0183	1.0243	1.0320	1.0415	1.0548	1.0709	1.0949	1.1266	1.1725	1.2419	1.3706	1.5959	2.1206	
4.2	1.0172	1.0231	1.0303	1.0394	1.0518	1.0669	1.0892	1.1195	1.1617	1.2253	1.3429	1.5404	1.9937	3.3120
4.4	1.0163	1.0220	1.0288	1.0376	1.0492	1.0632	1.0848	1.1130	1.1523	1.2108	1.3188	1.4948	1.8878	3.0031
4.6	1.0156	1.0210	1.0274	1.0359	1.0469	1.0600	1.0801	1.1072	1.1438	1.1980	1.29766	1.4560	1.7990	2.7483
4.8	1.0151	1.0201	1.0261	1.0343	1.0449	1.0572	1.0763	1.1020	1.1361	1.1866	1.2787	1.4220	1.7235	2.5370
5.0	1.0147	1.0192	1.0249	1.0330	1.0429	1.0548	1.0728	1.0971	1.1293	1.1767	1.2618	1.3927	1.6589	2.3602
5.2	1.0143	1.0183	1.0239	1.0318	1.0410	1.0523	1.0696	1.0927	1.1232	1.1679	1.2465	1.3669	1.6032	2.2117
5.4	1.0141	1.0176	1.0229	1.0304	1.0391	1.0502	1.0666	1.0884	1.1177	1.1601	1.2326	1.3441	1.5551	2.0861
5.6	1.0137	1.0171	1.0220	1.0291	1.0375	1.0483	1.0638	1.0847	1.1126	1.1531	1.2198	1.3240	1.5131	1.9792
5.8	1.0134	1.0168	1.0213	1.0280	1.0360	1.0467	1.0612	1.0810	1.1071	1.1468	1.2082	1.3060	1.4766	1.8877
6.0	1.0131	1.0165	1.0207	1.0270	1.0347	1.0449	1.0590	1.0779	1.1025	1.1410	1.1975	1.2896	1.4446	1.8090

$\delta\eta$: 0.0410 0.0517 0.0650 0.0819 0.1031 0.1298 0.1634 0.2056 0.259 0.326 0.410 0.517 0.650

LINEAR INTERPOLABILITY of A_0 in ρ and $\log_{10}\eta$. In the area below and to the left of the solid line, A_0 can be interpolated to 1% or better.

ACCURACY. Left of or below the dashed line errors as derived from fundamental quantities are from 0.1% to 0.5%. Elsewhere they are from 0.6% to 1.0%.

TABLE XXXVI. A_1.

ρ \ $\log_{10}\eta$ →		-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4	0.5
η →	0	0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512	3.162
$\delta\eta$ →	0.1585	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	0.650	
0.6		1.9436													
0.8		1.6007													
1.0		1.4143													
1.2		1.3017	1.4271	1.4656	1.5134	1.5879	1.6910	1.8350	2.0498	2.4075					
1.4		1.2289	1.3284	1.3595	1.3961	1.4548	1.5360	1.6490	1.8088	2.0778					
1.6		1.1792	1.2610	1.2861	1.3195	1.3635	1.4258	1.5135	1.6441	1.8528					
1.8		1.1439	1.2121	1.2341	1.2616	1.2979	1.3466	1.4206	1.5238	1.6916	1.9692				
2.0		1.1180	1.1762	1.1941	1.2162	1.2491	1.2853	1.3520	1.4368	1.5732	1.7904				
2.2		1.0984	1.1490	1.1658	1.1860	1.2130	1.2480	1.3001	1.3677	1.4831	1.6580	2.0046	2.6724		
2.4		1.0833	1.1272	1.1423	1.1590	1.1837	1.2139	1.2567	1.3160	1.4140	1.5690	1.8447	2.3822		
2.6		1.0714	1.1100	1.1248	1.1395	1.1615	1.1868	1.2259	1.2792	1.3604	1.4924	1.7207	2.1604		
2.8		1.0619	1.0980	1.1094	1.1230	1.1428	1.1660	1.1999	1.2468	1.3162	1.4337	1.6235	1.9875	2.7921	
3.0		1.0541	1.0870	1.0976	1.1099	1.1274	1.1489	1.1786	1.2207	1.2809	1.3835	1.5455	1.8509	2.5137	
3.2		1.0477	1.0783	1.0871	1.0985	1.1149	1.1346	1.1615	1.1988	1.2523	1.3425	1.4821	1.7414	2.2916	
3.4		1.0423	1.0712	1.0790	1.0890	1.1034	1.1224	1.1469	1.1806	1.2288	1.3083	1.4303	1.6529	2.1149	
3.6		1.0378	1.0652	1.0714	1.0810	1.0943	1.1118	1.1334	1.1650	1.2090	1.2796	1.3873	1.5802	1.9732	
3.8		1.0340	1.0600	1.0660	1.0744	1.0860	1.1024	1.1225	1.1513	1.1921	1.2548	1.3510	1.5200	1.8554	
4.0		1.0308	1.0550	1.0612	1.0688	1.0793	1.0948	1.1130	1.1401	1.1778	1.2345	1.3205	1.4682	1.7589	
4.2		1.0279	1.0511	1.0569	1.0638	1.0740	1.0881	1.1052	1.1302	1.1650	1.2158	1.2944	1.4251	1.6792	
4.4		1.0256	1.0471	1.0530	1.0593	1.0690	1.0826	1.0987	1.1219	1.1537	1.2000	1.2718	1.3871	1.6108	2.1065
4.6		1.0234	1.0439	1.0497	1.0557	1.0648	1.0772	1.0929	1.1142	1.1435	1.1860	1.2523	1.3548	1.5529	1.9830
4.8		1.0214	1.0410	1.0464	1.0522	1.0608	1.0728	1.0873	1.1074	1.1341	1.1738	1.2353	1.3292	1.5040	1.8798
5.0		1.0198	1.0382	1.0436	1.0492	1.0572	1.0688	1.0822	1.1012	1.1260	1.1629	1.2203	1.3064	1.4680	1.7927
5.2		1.0184	1.0358	1.0409	1.0467	1.0540	1.0649	1.0779	1.0957	1.1194	1.1533	1.2071	1.2870	1.4300	1.7183
5.4		1.0170	1.0333	1.0383	1.0440	1.0510	1.0611	1.0737	1.0908	1.1130	1.1446	1.1953	1.2695	1.4016	1.6548
5.6		1.0158	1.0312	1.0361	1.0415	1.0480	1.0576	1.0694	1.0860	1.1071	1.1370	1.1846	1.2539	1.3707	1.6003	2.1645
5.8		1.0147	1.0293	1.0338	1.0391	1.0454	1.0541	1.0656	1.0811	1.1016	1.1292	1.1751	1.2397	1.3473	1.5531	2.0478
6.0		1.0138	1.0278	1.0318	1.0371	1.0428	1.0511	1.0620	1.0768	1.0966	1.1230	1.1664	1.2265	1.3253	1.5120	1.9483
6.2																1.8627

ACCURACY. Left of or below the dashed line errors as derived from fundamental quantities are from 0.2% to 0.6%. Elsewhere they are from 0.7% to 1.1%.

LINEAR INTERPOLABILITY of A_1 in ρ and $\log_{10}\eta$. In the area below and to the left of the solid line, A_1 can be interpolated to 1% or better.

TABLE XXXVII. A_2.

ρ	$\log_{10}\eta \to$ / $\eta \to 0$	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4
η		0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512
$\delta\eta \to$	0.1585	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517	
1.0	3.6055													
1.2	2.7247													
1.4	2.2075			2.7273	2.8975									
1.6	1.8829	2.1089		2.2629	2.3865	2.5562								
1.8	1.6683	1.8403	1.8911	1.9566	2.0494	2.1757		2.6385						
2.0	1.5206	1.6559	1.6959	1.7462	1.8185	1.9151	2.0579	2.2483						
2.2	1.4157	1.5248	1.5571	1.5970	1.6544	1.7308	1.8433	2.0011	2.2597	2.6696				
2.4	1.3386	1.4290	1.4562	1.4883	1.5351	1.5968	1.6875	1.8250	2.0201	2.3395				
2.6	1.2809	1.3577	1.3804	1.4071	1.4458	1.4968	1.5715	1.6822	1.8431	2.0954				
2.8	1.2366	1.3025	1.3224	1.3447	1.3779	1.4208	1.4835	1.5743	1.7090	1.9115				
3.0	1.2019	1.2599	1.2769	1.2964	1.3250	1.3618	1.4154	1.4900	1.6059	1.7707				
3.2	1.1742	1.2255	1.2406	1.2578	1.2829	1.3152	1.3616	1.4253	1.5253	1.6607	1.9062			
3.4	1.1519	1.1976	1.2112	1.2263	1.2487	1.2773	1.3185	1.3761	1.4605	1.5738	1.7803	2.1549		
3.6	1.1336	1.1743	1.1869	1.2007	1.2204	1.2464	1.2831	1.3340	1.4080	1.5040	1.6780	1.9904		
3.8	1.1184	1.1549	1.1661	1.1788	1.1968	1.2217	1.2535	1.2996	1.3647	1.4473	1.5940	1.8589		
4.0	1.1057	1.1384	1.1483	1.1602	1.1765	1.1981	1.2281	1.2693	1.3283	1.4006	1.5230	1.7523	2.1947	
4.2	1.0949	1.1246	1.1332	1.1442	1.1588	1.1782	1.2062	1.2416	1.2969	1.3629	1.4679	1.6651	2.0358	
4.4	1.0858	1.1123	1.1202	1.1303	1.1432	1.1613	1.1868	1.2182	1.2694	1.3302	1.4228	1.5947	1.9098	
4.6	1.0782	1.1015	1.1087	1.1180	1.1297	1.1464	1.1696	1.1997	1.2448	1.3018	1.3846	1.5387	1.8112	
4.8	1.0710	1.0920	1.0983	1.1074	1.1180	1.1335	1.1541	1.1816	1.2229	1.2774	1.3517	1.4894	1.7219	
5.0	1.0651	1.0836	1.0899	1.0980	1.1078	1.1221	1.1408	1.1670	1.2035	1.2594	1.3233	1.4445	1.6536	2.1269
5.2	1.0599	1.0768	1.0823	1.0899	1.0989	1.1125	1.1297	1.1539	1.1878	1.2359	1.2982	1.4061	1.5897	2.0000
5.4	1.0552	1.0710	1.0762	1.0831	1.0915	1.1040	1.1201	1.1426	1.1738	1.2183	1.2773	1.3705	1.5362	1.8917
5.6	1.0511	1.0661	1.0710	1.0776	1.0852	1.0969	1.1121	1.1332	1.1622	1.2023	1.2582	1.3389	1.4911	1.8006
5.8	1.0475	1.0617	1.0661	1.0720	1.0798	1.0910	1.1052	1.1248	1.1520	1.1876	1.2389	1.3138	1.4490	1.7229
6.0	1.0441	1.0578	1.0618	1.0673	1.0749	1.0853	1.0986	1.1171	1.1420	1.1746	1.2275	1.2910	1.4140	1.6652

ACCURACY
Left of or below the dashed line errors as derived from fundamental quantities are from 0.1% to 0.6%. Elsewhere they are from 0.7% to 1.0%.

LINEAR INTERPOLABILITY OF A_2 IN ρ AND $\log_{10}\eta$.
In the area below and to the left of the solid line, A_2 can be interpolated to 1% or better.

TABLE XXXVIII. A_3.

ρ \ $\log_{10}\eta$ →	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4
η		0.1585	0.1995	0.2512	0.3162	0.3981	0.5012	0.6310	0.7944	1.000	1.259	1.585	1.995	2.512
$\delta\eta$ →		0.1585	0.0410	0.0517	0.0650	0.0819	0.1031	0.1298	0.1634	0.2056	0.259	0.326	0.410	0.517
1.8	3.7085													
2.2	2.4790													
2.6	1.8975	2.0818	2.1348	2.2047	2.3002	2.4417								
3.0	1.5909	1.7119	1.7463	1.7907	1.8505	1.9405	2.0488	2.2170						
3.4	1.4148	1.5018	1.5266	1.5570	1.5974	1.6586	1.7276	1.8375	2.0041	2.2612				
3.8	1.3054	1.3741	1.3935	1.4159	1.4450	1.4891	1.5346	1.6103	1.7239	1.8976	2.1960			
4.2	1.2352	1.2910	1.3069	1.3249	1.3473	1.3806	1.4115	1.4659	1.5472	1.6691	1.8785	2.2353		
4.6	1.1865	1.2335	1.2469	1.2622	1.2810	1.3070	1.3290	1.3701	1.4302	1.5186	1.6719	1.9326		
5.0	1.1517	1.1896	1.2008	1.2149	1.2311	1.2536	1.2698	1.3029	1.3493	1.4140	1.5338	1.7251	2.0805	
5.4	1.1260	1.1554	1.1642	1.1766	1.1913	1.2098	1.2251	1.2536	1.2911	1.3416	1.4379	1.5842	1.8463	
5.8	1.1063	1.1276	1.1340	1.1448	1.1597	1.1716	1.1891	1.2155	1.2475	1.2884	1.3695	1.4794	1.6842	2.1146
6.2	1.0911													

ACCURACY

Left of or below the dashed line errors as derived from fundamental quantities are from 0.3% to 0.7%. Elsewhere they are from 0.8% to 1.2%.

LINEAR INTERPOLABILITY OF A_3 IN ρ AND $\log_{10}\eta$.

In the area below and to the left of the solid line, A_3 can be interpolated to 1% or better.

TABLE XXXIX. A_4.

ρ	$\eta \to 0$	−0.8	−0.7	−0.6	−0.5	−0.4	−0.3	−0.2	−0.1	0.0	0.1	0.2	0.3	0.4
2.6	3.9763													
3.0	2.7601	3.0872	3.1810	3.3047	3.4743	3.7040								
3.4	2.1004	2.3270	2.3794	2.4608	2.5620	2.6971								
3.8	1.7654	1.8950	1.9320	1.9815	2.0454	2.1346	2.2631							
4.2	1.5497	1.6356	1.6606	1.6932	1.7374	1.8002	1.8875	2.0075	2.1893					
4.6	1.4125	1.4703	1.4892	1.5118	1.5445	1.5903	1.6535	1.7349	1.8632	2.0490				
5.0	1.3210	1.3685	1.3825	1.4017	1.4254	1.4522	1.5008	1.5627	1.6543	1.7924	2.0083			
5.4	1.2573	1.2937	1.3043	1.3178	1.3366	1.3578	1.3966	1.4426	1.5101	1.6130	1.7795	2.0407		
5.8	1.2110	1.2429	1.2547	1.2658	1.2797	1.2916	1.3249	1.3603	1.4126	1.4938	1.6236	1.8207		
6.2	1.1766													

ACCURACY

Left of or below the dashed line errors as derived from fundamental quantities are from 0.3% to 0.7%. Elsewhere they are from 0.8% to 1.4%.

LINEAR INTERPOLABILITY OF A_4 IN ρ AND $\log_{10}\eta$.

In the area below and to the left of the solid line, A_4 can be interpolated to 1% or better.