thoroughly satisfactory one on this fundamental question in
the theory of differential equations.

Chapter XII. contains some applications of the general theo-
rems, and begins with some of the well-known theorems of
Briot and Bouquet and then follows a most important theorem
due to Painlevé and the latter's notion of fixed and movable
critical points. The writer has given a brief explanation of
what Painlevé means by these terms in another number of this
BULLETIN, and it need not be repeated here. Riccati's equation
is next studied, and the chapter closes with an account of the
inversion of the elliptic integral and of certain entire functions
associated with the elliptic functions. The fuller study of the
subject of differential equations and of the functions defined
by them is reserved for another volume.

The writer is quite conscious of the inadequacy of the pre-
ceding notice to give a satisfactory idea of this most impor-
tant work of M. Picard's. The attempt has been made to show
how in each theory or its application M. Picard goes at once
to what is essential and in particular in the applications how
he has selected really important problems in analysis, geom-
etry, and mathematical physics. No applications are given
simply because they afford pretty exercises in analysis or give
rise to very symmetrical sets of formulæ. It is customary to
say something about the typography of a book reviewed and
concerning errata. As for the former, it is hardly necessary to
comment on Gauthier-Villars' manner of getting up a book.
As for the latter, they are too few and trifling to mention:
still one might mention one which the reader will not find out
is an error until he has read nearly a page further. In the
third line from the bottom of page 45, vol. I., we find the words:
"Je me place d'abord dans le premier cas." Instead of the
"first case" it should be the "*second case.*"

<div align="right">T. CRAIG.</div>

BALTIMORE, Oct. 10, 1893.

NOTES.

A REGULAR meeting of the NEW YORK MATHEMATICAL
SOCIETY was held Saturday afternoon, October 7, at half-past
three o'clock, the president, Dr. McClintock, in the chair.
The following persons, having been duly nominated and being
recommended by the council, were elected to membership :
Mr. John M. Colaw, Monterey, Va.; Mr. David Lyman Pette-
grew, Worcester, Mass.; Dr. Isaac J. Schwatt, University of
Pennsylvania; Professor David Eugene Smith, Michigan State

Normal School. Professor E. Study of Marburg was present and was introduced to the Society by the president. Being asked to address the Society, he first communicated a brief note on monogenic functions by Professor T. Craig (see the next number of the BULLETIN). He then made some remarks concerning researches made by himself jointly with Professor F. Engel of Leipzig in the theory of groups, and produced an example of a continuous group in which the finite transformations were not all generated by infinitesimal transformations (see Chapman's report on Lie's theory, BULLETIN, vol. II., No. 4, p. 69). This group is the so-called special linear homogeneous group :

$$x' = \alpha x + \beta y, \qquad y' = \gamma x + \delta y, \qquad \alpha\delta - \beta\gamma = 1.$$

Excepting the identical transformation $x' = x$, $y' = y$, and the involutory transformation $x' = -x$, $y' = -y$, we may say that in this group every given finite transformation is contained in one single one-branch group (Chapman, p. 66), which is, in general, generated by an infinitesimal transformation. But this group may break up into two parts, or " hosts " (Chapman, p. 62). The transformations of the first host, containing the identical transformation, once more form a continuous group; the transformations of the second host, containing the said involutory transformation, do not form a group and cannot be generated by any infinitesimal transformation whatever belonging to the special linear homogeneous group. These considerations and others associated with them will be published *in extenso* in the *Berichte* of the Saxon Academy of Sciences at Leipzig.

A paper by Professor W. H. Echols entitled "Note on the theory of functions" was read by the secretary. In this paper the development of functions of a complex variable in series of factorial functions was treated in a manner somewhat analogous to that usually employed in the derivation of Taylor's and Laurent's theorems.

THE Annual Meeting of the NEW YORK MATHEMATICAL SOCIETY will be held on Thursday, December 28, at *half-past three* in the afternoon instead of at *half-past four* as heretofore announced. Professor Simon Newcomb of Johns Hopkins University has consented to deliver an address to the Society at this meeting, and has chosen as his topic " Modern Mathematical Thought."

THE Mathematical Club of the University of Virginia has recently been reorganized. It is to meet weekly during the session on Mondays at 3:30 P.M. Dr. James M. Page is president and Mr. Edgar Odell Lovett is secretary. At the first

meeting Professor Echols gave a contribution from his investigations in the theory of functions of a real variable. Original papers are expected also from Dr. Page on his researches in Lie's theory of infinitesimal transformations, and from other members of the club. T. S. F.

A DECIDED novelty in mathematical journalism is *L'intermédiare des mathématiciens,* of which the first number is announced to appear in January 1894. It will be the principal object of this new monthly to furnish, in answer to inquiries, information on mathematical subjects, solutions of problems, bibliographical references, etc. Both questions and answers will be published; but anything not directly pertaining to the questions proposed, such as memoirs or papers on special subjects, is rigorously excluded.

By publishing the question (either with the name of the proposer, or only with his initials, or under a pseudonym if preferred) it is desired to engage the active co-operation of the readers of the journal and to establish communication between persons who can be helpful to each other. To quote from the preliminary announcement of the editors: "In most of the existing mathematical journals questions are proposed; but generally the proposer himself has a solution. In our journal quite a different idea will be carried out. Problems and questions are to be offered just for the reason that the proposer wishes to obtain a solution or at least indications concerning it. Sometimes, also, the object may be to obtain rapidly a result that could otherwise be found only by long and tedious work. —In the 17th century men of science addressed challenges to each other and tried to conceal their methods of solution; science has gained largely by this emulation. But in our age the conditions are changed: science is spread widely; every scholar desires to make known his discoveries as soon as possible; and a sort of collective effort is being substituted with great advantage for the individual work of our ancestors. It is this co-operation among mathematicians that we wish to foster and farther develop by economizing the time spent uselessly in researches that were made before by others."

In view of the extreme specialization of modern mathematics and of the consequent difficulty of obtaining the best information on particular questions, the help that might be afforded by a journal of this kind to a worker in any special branch can hardly be overestimated. The names of the editors, MM. C.-A Laisant and Émile Lemoine, are a sufficient guarantee of the able and efficient execution of the plan. Gauthier-Villars is the publisher; the price of subscription, within the limits of the postal union, is 6 francs annually.

Suitable questions are solicited for the first number: the

proof-sheets of the questions received for this number will be
sent to the correspondents so as to obtain their collaboration
from the very beginning. Communications are to be addressed
to the firm of Gauthier-Villars, 55, quai des Grands-Augustins,
Paris; or to either of the editors: C.-A. Laisant, 162, avenue
Victor-Hugo, and E Lemoine, 5, rue Littré, Paris.   A. Z.

AMONG the recent announcements of the Cambridge Univer-
sity Press we notice " The scientific papers of John Couch
Adams," vol. I., edited by Dr. W. G. Adams, F.R.S., with a
memoir by J. W. L. Glaisher, and " A treatise on spherical
astronomy " by Sir Robert S. Ball.

Dr. Charles H. Chapman has accepted the presidency of the
University of Oregon, at Eugene, Oregon.   T. S. F.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.

BREWSTER (D.).   Life of Sir Isaac Newton.   New ed.   (Castle Series.)
    London, Gall, 1893.   8vo.   340 pp.   2s.

CARRARA.   Saggio d'introduzione alla teoria delle quantità complesse
    geometricamente rappresentate.   Cremona, 1898

CHITTENDEN (J. B.).   A presentation of the theory of Hermite's form
    of Lamé's equation, with a determination of the explicit forms in
    terms of the p function for the case $n = 3$.   [Diss.]   Leipzig, (Teub-
    ner,) 1893.   8vo.   85 pp.   Mk. 2.80

DELIN (C.).   Ueber zwei ebene Punktsysteme, die algebraisch auf
    einander bezogen sind.   [Diss.]   Lund, Möller, 1893.   8vo.   85 pp.
    1 plate.   Mk. 1.60

FEGERL.   Ueber die unendlich oft iterierten Funktionen.   [Progr.]
    Ostrau, 1893.

FREGE (G.).   Grundgesetze der Arithmetik, begriusschriftlich abgeleitet.
    Vol. I.   Jena, Pohle, 1893.   8vo.   32 and 253 pp.   Mk. 12.00

GRAVELIUS (H.).   Lehrbuch der höheren Analysis.   Zum Gebrauche
    bei Vorlesungen an Universitäten und technischen Hochschulen.
    Vol. I: Lehrbuch der Differentialrechnung.   Berlin, Dümmler, 1893.
    8vo.   8 and 324 pp.   Mk. 6.00

GSCHNITZER (F.).   Die Affinität in der Ebene nebst ihren speciellen
    Fällen, der Ähnlichkeit, Congruenz und Flächengleichheit, in ana-
    lytischer Behandlung.   [Progr.]   Brixen, 1893.   8vo.   27 pp.   Il-
    lustrated.

HUTH (M.).   Ueber Kurven von konstanter Steigung auf gegebenen
    Flächen.   [Progr. No. 578.]   Stollberg, 1893.   4to.   20 pp.