

Professional.

D. C. J. RODGERS,
DENTIST
Suite 5, Oddfellows' Building, Corner
Yonge and College Sts.
TORONTO.
Telephone 3904.

M. R. A. S. VOGT,
ORGANIST AND CHOIRMASTER JARVIS
STREET BAPTIST CHURCH.
Teacher of the Pianoforte and Organ at the Toronto
Conservatory of Music, Dufferin House and Moulton
College.
RESIDENCE, 605 CHURCH ST.,
TORONTO.

M. R. J. D. A. TRIPP,
CONCERT PIANIST and TEACHER.
Only Canadian pupil of the great composer and
pianist, MOSYKOWSKI. Concert engagements and
pupils accepted.
TORONTO CONSERVATORY OF MUSIC
AND 20 SEATON ST.

M. R. W. E. FAIRCLOUGH, F.C.O., ENG.
ORGANIST AND CHOIRMASTER ALL SAINTS'
CHURCH, TORONTO.
Teacher of Organ, Piano and Theory
Exceptional facilities for Organ students. Pupils
prepared for musical examinations. Harmony and
counterpoint taught by correspondence.
GLENE ROAD OR TORONTO COLLEGE OF MUSIC.

W. O. FORSYTH,
Lessons in Piano Playing and Theory. Private
pupil of the great and eminent teachers, Prof. Martin
Krause, Dr. S. Jadassohn, of Leipzig, and Prof. Julius
Epstein of Vienna.
Applications can be made by letter or in person to
Address, 113 College Street, - TORONTO.

W. KUCHENMEISTER,
VIOLIN SOLOIST AND TEACHER.
Late a pupil of the Kaff Conservatory at Frankfurt-
en-Main, and of Professors H. E. Kayser, Hugo Heer-
mann and C. Bergher, formerly a member of the
Philharmonic Orchestra at Hamburg, (Dr. Hans von
Bulow, conductor).
Studio, 15 King St. W., Messrs. A. & S. Nordheimer.
Residence, Corner Gerrard and Victoria Sts.
Telephone 980.

SIGNOR LEONARDO VEGARA
Of the Royal Italian Opera, Covent Garden, Lon-
don, Eng., Professor of Singing at the Loretto Abbey
and Toronto College of Music.
SINGING.
Grand Opera, Opera Comique, Oratorios. Songs
taught in English, Italian, French, German, Span-
ish. Public introduction to Operatic and Concert
Stage in United States and Europe.
VOICES TRIED FREE.
Apply to residence, 586 Spadina avenue mornings
and evenings.
City Office - Williams & Son, 143 Yonge Street and
Toronto College of Music.

MISS DALLAS, Mus. BAC.
Fellow of the Toronto Conservatory of
Music, Organist Central Presbyterian Church. PIANO,
ORGAN AND THEORY. Toronto Conservatory of Music
and 99 Bloor Street West.

MRS. & MISS DRECHSLER-ADAMSON,
VIOLINISTS.
Will receive a limited number of pupils at
their residence, 67 BLOOR ST. EAST.

J. LEWIS BROWNE,
(Organist and Choirmaster Bond St. Cong. Church)
CONCERT ORGANIST
Pupils received in Organ, Piano, Harmony and
Instrumentation. 72 SHUTER STREET.
Reception hours 3 to 5 p.m. daily.

M. R. H. KLINGENFELD,
CONCERT VIOLINIST AND TEACHER.
Open for Concert engagements and a limited num-
ber of pupils.
505 Sherbourne Street.
or Toronto College of Music.

MRS. MARIE M. KLINGENFELD,
Teacher of Vocal Culture, Graduate of the
number of pupils. Toronto College of Music, or 505
Sherbourne Street.

SCIENTIFIC AND SANITARY.

The longest drawbridge span in the world
is that now being constructed between East
Omaha and Council Bluffs. It measures 520
feet from end to end. That of New-London,
Conn., is 503 feet long; and one over Arthur
Kill, Staten Island, just 500. The new
drawbridge of the New-York Central over
Harlem River has an extent of only 389 feet,
but it provides for four tracks, and is the
heaviest one in the world, weighing 4,000,000
pounds. The one at East Omaha will weigh,
when completed, about 3,000,000.

Coal oil is used for fuel not only under
steam boilers on land and afloat and in loco-
motives, but in furnaces for making crucible
steel. A plant of this class was recently de-
scribed by W. E. Crane, of Waterbury, Conn.,
before the American Society of Mechanical
Engineers. Regarding such use of oil with
engines The *Iron Age* recently raised an
interesting point. In summer oil will flow
freely through the supply pipes; in winter
extra heat may be required to keep it in a fluid
condition. Bursting pipes and other such re-
pairs might modify the economy of using that
sort of fuel.

An improvement has been made upon
their air brake by the Westinghouse people, by
which greater pressure is exerted if the train
be running at very high speed. In fact, there
is a valve which regulates the pressure to cor-
respond with the speed of the wheels. As the
velocity is reduced, the cylinder pressure is re-
duced. Some experiments were made not
long ago with this improved brake on the
Pennsylvania Railroad, and the performance
was highly satisfactory. A train was stopped
in 971 feet from a speed of 60 miles an hour.
The ordinary emergency brake required 1,235
feet in which to stop the same train.

Although many inventions of suitable sol-
der for aluminum have been reported in the
last few months, there is a tendency among
experts to doubt whether the problem has yet
been solved satisfactorily. An Englishman
who has been experimenting in this direction
advises the use of a soldering blowpipe, and
alloys his aluminum with some fusible metal,
so that it will "sweat" when heated, and
thus give the solder a better grip. One great
inconvenience experienced in this sort of work
is that aluminum transmits heat so rapidly
that by the time one end of a strip nine inches
long is hot enough to take the solder the
other is too hot to hold with comfort.

Pure aluminum is too pliable for some of
the uses to which it has been proposed to de-
voted it, but experiments in alloying it will un-
questionably increase the serviceability and
applications of that metal in time. Chromium,
the addition of which has such a good effect
in hardening steel, has lately been tried
abroad with aluminum. The result is gratify-
ing, but the difficulties of effecting the combi-
nation are great. Wolfram, a mineral con-
taining tungsten, iron and manganese, has also
been alloyed with aluminum, and the product
has lately been placed on the market in Eng-
land. This metal is almost as light as pure
aluminum, but more ductile and harder. It
can be worked like mild steel.

The mortality among human beings caused
by predaceous animals is very much smaller
than that due to snakes: 2,861 human beings
were killed in 1891, while 2,962 were killed in
1892, being an increase of 102; but the num-
ber of cattle killed by them is very large—
67,164 in 1891, against 77,170 in 1892, being
an increase of 10,006. It further appears that
while 21,389 persons were killed by snakes in
1891, 19,025 were killed in 1892, being a de-
crease of 2,364; 3,658 cattle were killed in 1891,
and 4,498 in 1892, being an increase of 840.
There were 16,581 wild animals destroyed
in 1891, against 15,988 in 1892; and 85,159
snakes destroyed in 1891, against 84,789 in
1892. The amount paid in rewards was very
nearly the same for each year.

Minard's Liniment for Rheumatism.

Educational.

**BISHOP
STRACHAN
SCHOOL**
FOR
YOUNG LADIES
Lent Term Begins Feb'y 11th, '94.

Full English Course
Languages, Music
Drawing, Painting
etc. For Prospectus
etc., apply to

MISS GRIER,
LADY PRINCIPAL,
WYKHAM HALL, TORONTO

MONSARRAT HOUSE

1, CLASSIC AVE., TORONTO.
BOARDING AND DAY SCHOOL FOR YOUNG LADIES
MISS VENNOR, PRINCIPAL

(Late Trebovir House, London, Eng.)
A thorough course of instruction will be given in
English, Mathematics and Modern Languages. Pupils
prepared for University examinations. Classes in
Swedish Carving will also be held twice a week.

MISS VEALS'
BOARDING AND DAY SCHOOL
FOR YOUNG LADIES.

50 and 52 Peter Street, - Toronto

English, Mathematics, Classics, Modern Languages,
Art and Music. Pupils prepared for entrance to the
Universities, and for the Government examinations
in Art. Home care combined with discipline, and high
mental training.

Resident, Native, German and French Governesses.
A large staff of experienced Professors and Teachers.

M. R. H. M. FIELD,
PIANO VIRTUOSO.
Pupil of Prof. Martin Krauss, Hans von Bulow and
Reinecke, solo pianist Albert Halle concerts; Richard
Strauss, conductor, Leipzig; pianist of the Seidl
orchestral tour in Canada, 1892; by invitation of Theo-
dore Thomas, representative Canadian solo pianist at
the World's Fair, Chicago. Concert engagements and
pupils accepted. Address - 105 Gloucester Street, or
Toronto College of Music.

W. J. McNALLY,
Late of Leipzig Conservatory of Music.
Organist and Choirmaster, Beverley Street Baptist
Church, Teacher of Piano.
Toronto College of Music or 32 Sussex Avenue

UPPER CANADA COLLEGE
(FOUNDED 1829.)

A fully equipped residential Boys' School. Besides
the Classical and Science Courses, for which the Col-
lege has long been famous, a thorough Business simi-
lar to the one adopted by the London (England)
Chamber of Commerce is now taught—eight exhibi-
tions entitling the winners to free tuition are annual-
ly open for competition. Winter Term begins Jan-
uary 8th.

For Prospectus apply to
The PRINCIPAL, U. C. COLLEGE,
DEER PARK, TORONTO.

One of the oldest seats of learning in Euro-
pe, the University of Valladolid, celebrated
recently its sixth centennial as an established
university. In 1293 King Sancho IV., of
Castilla and Leon, gave charter to this school.
But it had been in existence long before the
Christian era. The Roman Consul, Sertor-
ius, founded a school here, and the Moors ex-
tended it greatly in the eighth century.
Valladolid became then especially famous for
the study of medicine, a reputation which has
not altogether been lost in our days.—*Don
Juan Ortega Rubia, in the Revista Contemporanea,
Madrid.*

I was CURED of a bad case of Grip by MIN-
ARD'S LINIMENT.
Sydney, C.B. C. I. LAGUE.

I was CURED of loss of voice by MINARD'S
LINIMENT.
Yarmouth. CHARLES PLUMMER.

I was CURED of Sciatica Rheumatism by
MINARD'S LINIMENT.
Burin, Nfld. LEWIS S. BUTLER.