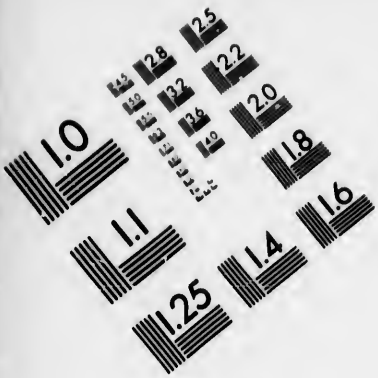
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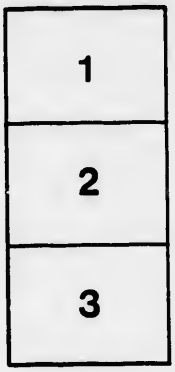
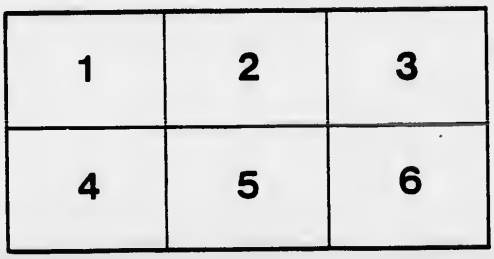
Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:





L'exemplaire filmé fut reproduit grâce à la générosité de:

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Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole → signifie "A SUIVRE", le symbole ▽ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.

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EXERCICES DE PHYSIQUE

ET

DE CHIMIE.

PHYSIQUE.

LES Elèves de la Classe Senior *de Philosophie ont fait un cours complet de Physique ; mais, ayant déjà subi un examen sur une partie de ce cours, ils ne devront être interrogés que sur les matières suivantes :*

ACOUSTIQUE.

OBJET de l'Acoustique—Formation du son—Différence entre le son et le bruit—Intensité du son—Sonomètre—Syrène de Cagniard Latour—Echelle musicale—Tons et demi-tons—Accords et discordances—Timbre du son—Instruments à cordes—Instruments à vent—Instruments à anches—Organe de la voix—Propagation du son dans l'air et dans les autres gaz—Propagation du son dans les liquides et dans les solides—Transmission du son dans une masse d'air limitée latéralement—Porte-voix—Cornet acoustique—Vitesse du son dans l'air—Longueur des ondes sonores—Vitesse du son dans l'eau et dans quelques autres substances—Son réflechi—Echo monosyllabique et polysyllabique—Echo simple, double, &c.—Organe de l'ouie.

LUMIERE.

DIVISION des corps considérés sous le rapport de la lumière—Hypothèses sur la cause de la lumière—Identité de la cause de la lumière et de la chaleur—Transmission de la lumière—Vitesse de la lumière—Intensité de la lumière—Ombre—Pénombre—Réflexion de la lumière—Réflexion de la lumière sur un miroir plan, sur un miroir convexe sphérique et sur un miroir concave sphérique—Réflexion de la lumière sur un miroir elliptique et sur un miroir parabolique—Réfraction de la lumière—Indices de réfraction

—Effets des verres concaves et des verres convexes sur les rayons lumineux —Foyer des verres convexes—Aberration de sphéricité—Dispersion de la lumière—Homogénéité des couleurs du spectre solaire—Inégale réflexibilité des rayons du spectre—Recomposition de la lumière blanche—Propriétés éclairantes, calorifiques et chimiques des rayons du spectre—Objets vus à travers un prisme—Interférences—Couleurs produites par les lames minces et anneaux colorés—Coloration des corps—Diffraction de la lumière—Double réfraction de la lumière—Polarisation de la lumière—Polarisation par réflexion—Polarisation par réfraction—Polarisation par double réfraction—Couleurs que présentent les lames crystallisées exposées à la lumière polarisée—Vision—Structure de l'œil—Marche de la lumière dans l'œil—Sensation unique produite sur les deux yeux—Insuffisance de l'œil pour juger des grandeurs, des formes et des distances—Angle optique—Angle visuel—Explication de diverses illusions d'optique—Mouvement sensible à l'œil—Illusions produites par le mouvement—Persistence des impressions de la lumière sur la rétine de l'œil—Phénakisticope—Effets des miroirs plans par rapport à la vision—Kaléidoscope—Effets des miroirs convexes par rapport à la vision—Effets des miroirs concaves—Anamorphoses—Effets des verres convexes—Effets des verres concaves—Myopisme, Presbytisme et moyens de remédier à ces défauts—Verres achromatiques—Microscopes—Microscope simple—Microscope composé—Microscope solaire—Lanterne magique —Phantasmagorie—Chambre obscure—Chambre claire — Télescopes—Lunette Astronomique—Lunette de Galilée—Lunette Terrestre—Télescope de Newton—Télescope de Gregory—Télescope de Lemaire—Pourquoi le soleil paraît rouge à l'horizon—Couleur azurée du ciel—Arc-en-ciel—Halo—Parhélie et parasélène—Mirage—Aurore boréale.

Electricité.

Definition de l'électricité — Phénomènes généraux des attractions et des répulsions électriques—Faculté conductrice des corps pour le fluide électrique—Comment on isole un corps conducteur—Distinction de deux sortes d'électricité—Hypothèse de Franklin pour expliquer les phénomènes électriques—Hypothèse de Symmer—Electroscopes—Balance électrique de Coulomb—Machines électriques—Phénomènes que présente une machine électrique en mouvement—Distinction des corps sous le rapport de l'électricité qu'ils acquièrent par le frottement—Théorie de l'électrisation par le frottement—Développement de l'électricité par le contact des corps dissemblables—Développement de l'électricité par la pression—Développement de l'électricité par la chaleur—Développement de l'électricité par les actions chimiques, &c.—Expansion du fluide électrique sur la surface des corps—Distribution du fluide électrique à la surface des corps de diverses formes—Distribution du fluide électrique à la surface des corps en contact—Influence à distance de l'électricité libre à la surface d'un corps conducteur sur un autre corps à l'état naturel—Explication des attractions et des répulsions électriques—Carillon électrique, grêle, danse électrique, &c.—Action des pointes pour lancer le fluide électrique—Action des pointes pour neutraliser et soutirer le fluide électrique—Moulinet et système planétaire électriques—Cause de la lumière électrique—Apparences de la lumière électrique à l'extrémité des pointes—Etincelle électrique—Illuminations électriques—Distance explosive électrique—Sphère d'activité électrique—Electrophore—Condensateur—Electroscope à condensateur—Bouteille de Leyde—Charge

par cascade—Carreau fulminant—Batterie électrique—Combustions électriques—Pistolet de Volta—Influence de l'électricité sur l'évaporation et l'écoulement des liquides et sur l'économie végétale—Décomposition de l'eau—Electricité atmosphérique — Paratonnerres — Paratonneres portatifs—Autres moyens propres à garantir des effets de la foudre—Choc en retour—Explication de l'éclair, de la foudre et du tonnerre.

Galvanisme.

Origine de l'électricité Galvanique—Théorie de Volta—Combinaisons galvaniques simples— Phénomènes produits par les combinaisons galvaniques simples—Combinaisons galvaniques composées—Pile en colonnes—Pile à couronne de tasses—Pile à auges—Distribution du fluide électrique dans la pile galvanique—Courants électriques—Effets produits par la pile sur le corps humain—Effets produits sur les animaux récemment mis à mort—Etincelles et combustions produites par la pile—Décomposition de l'eau—Décomposition des oxydes métalliques—Poissons électriques.

Magne'tisme.

Definition du magnétisme—Substances magnétiques—Pôles d'un aimant—Hypothèse de Coulomb pour expliquer les phénomènes magnétiques—Attractions et répulsions magnétiques—Distribution du fluide magnétique dans un aimant—Action du magnétisme à travers certain corps—Direction de l'aiguille aimantée—Communication du magnétisme—Etat magnétique de l'atmosphère—Hypothèse de Coulomb sur la cause du magnétisme terrestre—Magnétisme en mouvement.

Phe'nomenes Electro-magnetiques, Magneto-electriques, &c.

Decouvertes des phénomènes de l'électricité en mouvement—Attractions et répulsions des courants électriques—Courants fermés et solénoïdes—Actions réciproques des solénoïdes—Action des courants sur les aimants—Galvanomètre—Action des aimants sur les courants—Action de la terre sur les courants—Aimantation par les courants électriques—Machine magnèto-électrique—Etincelle—Commotion, décomposition de l'eau, &c. par cette machine—Nouvelle théorie du magnétisme—Phénomènes thermo-électriques—Pile thermo-électrique.

CHIMIE.

Le peu de temps qu'ont eu les Elèves pour se préparer prochainement à l'examen public a obligé de le restreindre, quant à cette partie, aux matières les plus intéressantes.

Objet de la Chimie—Corps élémentaires—Affinité et cohesion—Nomenclature.

Substances Inorganiques.

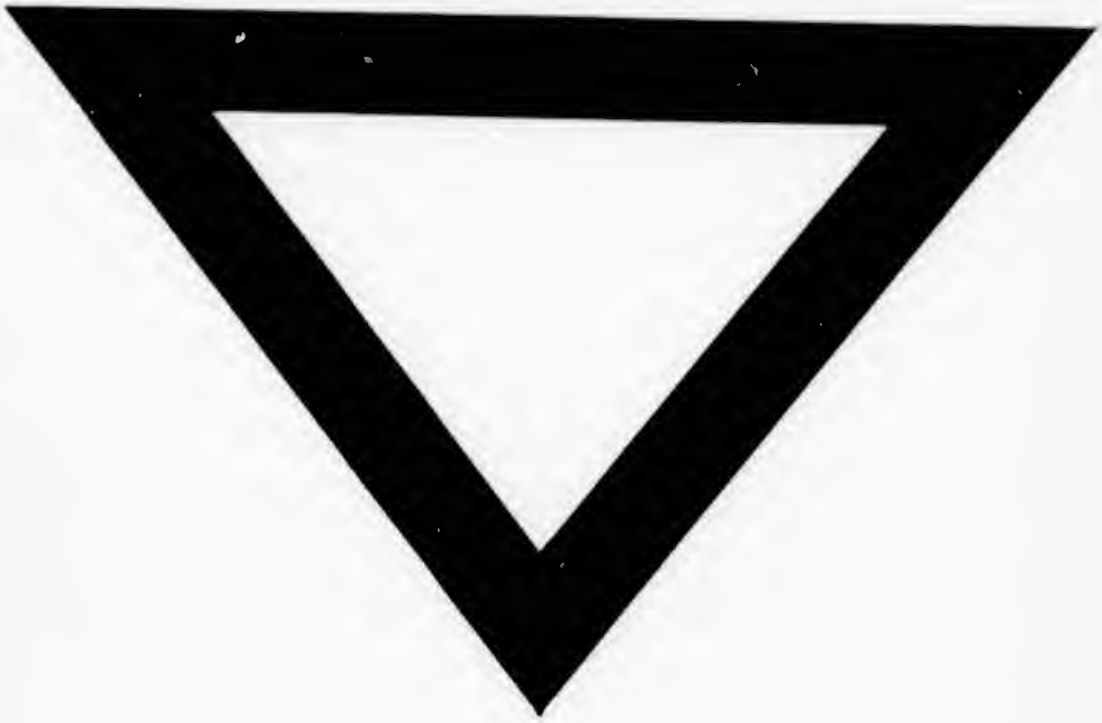
Oxygene—Combustion et oxygénation—Ignition, inflammation et détonation—Hydrogène—Chalumeau à mélange d'hydrogène et d'oxygène—Eau—Eaux minérales—Carbone—Acide carbonique—Hydrogène carboné—Phosphore—Acides à base de phosphore—Soufre—Acides à base de soufre—Chlore—Acide hydrochlorique—Azote—Oxydes d'azote—Air atmosphérique—Acides à base d'azote—Ammoniaque—Définition des métaux—Etat naturel des métaux—Action de la chaleur sur les métaux—Action de l'oxygène sur les métaux—Action des acides sur les métaux—Composition des sels—Silicium, aluminium et magnesium—Calcium—Sels de chaux—Strontium et barium—Potassium—Sels de potasse—Sodium—Sels de soude—Manganèse—Zinc—Fer—Etain—Arsenic, Antimoine et bismuth—Cuivre—Plomb—Sels de plomb—Mercure—Argent—Platine—Or.

Substances Organiques.

Vegetation—Analyse élémentaire des substances végétales—Principes acides—Principes neutres—Principes alcalins—Principes huileux ou inflammables—Principes végéto-animaux—Analyse élémentaire des substances animales—Fonctions animales ;—nutrition ;—respiration ;—assimilation—Fermentation putride, végétale et animale.

Les Elèves qui seront interrogés sur les matières précédentes sont :

MM. Edouard Belanger,
Louis T. Bernard,
Edouard Darveau,
Guillaume Fanning,
Pantaleon Forgues,
L. Honore Grenier,
Jean Johnston,
Jean Langevin,
Thomas Larouche,
Joseph Lesperance,
J. Charles Pinguet,
Charles Pouliot.

Séminaire de Québec,
8 Août 1838.

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